The Chemical Age

A Weekly Journal Devoted to Industrial and Engineering Chemistry

VOL. XV. No. 378 September 25, 1926 Prepaid Annual Subscription: United Kingdom, £1.1.0; Abroad, £1.6.0.

Contents

NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

The prepaid subscription to THE CHEMICAL AGE *is 21s. per annum for the United Kingdom, and 26s. abroad. Cheques, Money Orders and Postal Orders should be made payable to Benn Brothers, Ltd.*

Editorial and General Offices: Bouverie House, 154, Fleet Street, London, E.C.4.

Telegrams: "Allangas, Fleet, London." Telephone: City 0244

The Science of Export Trade

IN our last issue we gave some particulars showing the range and value of chemical overseas exports. For the first eight months of this year we have exported chemicals, etc., to the value of £15,169,524; the corresponding imports were of the value of £10,060,829, while the value of re-exports was £605,718. Although these figures are less favourable than those for the corresponding period of last year, they represent a very large item in national trade, and in addition the chemical products passing to and fro overseas are, perhaps more than any other class of products, essential to the life of a large number of other industries. Moreover, although the figures are not as good as usual, they are better in proportion than those of other industries or those of national trade as a whole—demonstrating the peculiar ability of the chemical industry to hold its own in adverse circumstances and to adapt itself to sudden stress and change. There is, however, not much to be gained by emphasising that chemical industry is losing less than national trade as a whole, though it is consoling to some extent; what we all hope to see is an improvement in the trading position of all industries. That, we are sure, would presently come if the nation could be assured of industrial peace and confidence. Fortunately, the signs are tending that way.

As regards export trade, Great Britain starts off with one immense initial advantage—its universal reputation for quality. At one time, chemical products stood rather outside this reputation, and it was the fashion to decry British products in comparison with German. That, however, has been rectified, and the fact that chemicals, dyes, paints, plant, etc., come from this country is now accepted rather as a proof of their quality than otherwise. The only remaining weakness in our system—and that is gradually disappearing—is too great a reliance on inherent quality alone, and too little effort to utilise to their fullest extent the arts of advertisement, sale, and distribution. The British manufacturer and merchant can do it just as well as, or even better than, the German or the American. In the past, perhaps, they have not recognised the necessity for it quite as fully, and have not been quite so ready to risk money on publicity or even on research without seeing a definite return in advance. For businesses of any size, however, publicity is now an essential service, and it is a commonplace to-day that big advertising and big business are inseparable and almost synonymous. Though it is true that the whole world has for a long time been the British market, there is still a vast volume of business waiting to be got, but it will only be got by diligent and systematic searching out. It is the business of the exporter to link up the demand that exists overseas with the supply from British works. That, in a word, is the whole science of export trade.

Chemical Highways and Byways

WE have before commented on the curious communications we receive from all quarters of the globe respecting some chemical problem or chemical product that the inquirer looks to Great Britain to supply. They make it clear that vigorous as British trade organisation no doubt is in overseas markets, there must be still a large amount of business that is lost for want of effective commercial contact. The published lists of buyers in this or that area are no doubt useful, but these are open equally to every trade. What is wanted is information about the thousands of people who want British goods and would prefer them to any other, but who have no available information as to where or how to obtain them. It is in this field that the technical and trade journal supplements so effectually the ordinary commercial organisations. It penetrates into remote fields inaccessible to the ordinary services; it meets the eye of potential users who may have no other avenues

of information; it follows not only the broad trade routes but the highways and byways which have not been "combed" so severely, and where, therefore, there is still good business waiting to be got. As an example of the contact which THE CHEMICAL AGE has established with distant parts of the world the following cases, taken casually from our correspondence file, are interesting and suggestive.

The first we pick up is an inquiry from an engineer in Taganrog, Russia, drawing attention to a recent article in our columns on "The Evolution of Colloid Mills," by Dr. S. P. Schotz, and asking for the addresses of the British makers. This information it was, of course, easy to supply. A judge of the Hungarian Patent Court, at Budapest, notices in THE CHEMICAL AGE that the publication of the Journal of the Russian Physico-Chemical Society has been resumed, and is anxious to obtain the address, which, in due course, is forwarded to him. A chemical engineer in South Pasadena, California, who has a proper regard for the quality of British chemical plant, requests to be furnished with the names of British firms who can supply plant for the manufacture of nitrous oxide, and intimates that he has in mind a plant of 100,000 to 150,000 cu. ft. capacity per month. Our merchant friends are usually very well informed as to trade terms and practices, and yet an experienced London merchant seeks our advice as to the meaning of "B.O.V.," applied to sulphuric acid, and we have the pleasure of explaining how the term Brown Oil of Vitriol arose. A large firm of Midland metallurgists is interested in a note on work done on atomic hydrogen arc welding by "a gentleman of the name of Langmuir," and by return of post he is furnished with the New York address of Dr. Langmuir. A Copenhagen firm, interested in our account of the recent opening of artificial silk works in Strasbourg in connection with the Lampose Group, desires to get into direct touch with the interests concerned, and is given the Continental address. From Helsingfors comes an inquiry relating to the formation of a new China Clay Association, and the writer is directed at once to the proper officials. A chemical engineer in a remote part of France wants to know all about the bone charcoal and bone tar trade in this country, and is told, if not all about it, enough to be of practical use.

From distant Rangoon a director of agriculture, who has followed our notes on urea, applies for information as to the commercial position of this fertiliser, and is supplied with what information is available. A German engineering firm, interested in an article on "Nitric Acid Production by the Submerged Brunler Flame," is given the address of the author, Mr. Oscar Brunler. A note on "Aniline Dyes for Food Stuffs" attracts the eye of an analytical chemist in the Bombay Presidency, and a list of British makers is promptly supplied. A Montreal firm, dealing in a large way with pharmaceutical products, sends us a puzzling question about floor varnishes, to which the resources of the Dominion appear to be unequal, and he is furnished with an expert opinion on the appropriateness of some of the British brands for his needs. From Italy the latest inquiry is for the number of Dr. Bergius's English patent regarding his hydrogenation process and for particulars about carbon dioxide as a refrigerant. India, which appears to be developing an interest in fertilisers, sends an inquiry about synthetic calcium nitrate (Norway saltpetre), and from Japan, where the search for new technical knowledge is keen, a request comes for some machine that "collects oxygen from air most economically." Perhaps the most surprising recent communication is one from Moscow, enclosing cheques to the amount of over £20, presumably to ensure adequate supplies of THE CHEMICAL AGE for the instruction of the scientific and technical services in that land of hope and glory. Numbers of inquiries have reached us about such new products as "Prodorite"; the most recent is one from Philadelphia, where the matter was much talked of during the jubilee meeting of the American Chemical Society, and full particulars have been already supplied. The last example is one just to hand from Penang, Straits Settlement. The writers are much interested in the new process for the colouring of concrete with organic dyestuffs, and desire to be put in touch with the authors of the process. This, of course, has been done.

These, as we have said, are only casual evidences of the wide and deep penetration effected by a widely read technical journal, and the part it may play when wisely used in the development of export trade.

The Direct Gypsum Process

IN these columns last week we referred to the methods outlined by Mr. Harold Jackman in connection with the fixation of by-product ammonia by means of gypsum, and offered a few criticisms of the semi-direct process which he suggested would be applicable to the purposes of the smaller works. Space at the time precluded us from reviewing the alternative method (known as the "direct process") which was described by Mr. Jackman, but frankly we consider that this process is far more likely than the indirect one to attract the attention of the coal carbonising industries. The plant is simple and apparently inexpensive to work. It can be installed at small works, and provided the absorption vessel is fixed at the inlet of the primary cooler, it is claimed that over 80 per cent. of the ammonia can be recovered as ammonium sulphate.

One would be inclined to favour one or more reaction vessels in which a suspension of finely ground anhydrite was maintained, rather than a packed absorption vessel. The packing medium of the latter may become choked with calcium carbonate. With a suitably designed reaction vessel, or series of vessels, having a conical bottom and a gate valve for sliding purposes, there will be less possibility of trouble arising. The chemical reaction involved in the direct process is much the same as in the indirect one. It can be represented thus:—

$$2NH_3+CO_2+H_2O+CaSO_4=(NH_4)_2SO_4+CaCO_3.$$

The suggestion made by Mr. Jackman that ammonium sulphate should be allowed to crystallise out with the sludge, is not too alluring. Such a mixed fertiliser would hardly prove attractive, apart from which it would possess other disabilities. Evaporation of the ammonium sulphate solution would appear to be a necessity, and care would be needed to secure the proper crystal structure and dryness of the sulphate. Mr.

Jackman's paper is certainly suggestive. Only on one previous occasion do we recall having seen the proposal that the direct use of anhydrite should be encouraged for the removal of by-product ammonia. It is a particularly interesting suggestion, which should not be lost sight of. Indeed, we have reason to believe that the solution of the by-product ammonia problem, which has been particularly acute during the last few years, depends on the efficient development of some such process as that outlined.

Chemical Cash Discounts

AMERICAN chemical manufacturers and merchants were recently a little startled to be asked by a New York journal, *Chemical Markets*, whether they believed in cash discounts, for the practice is all but universal, and in most cases has been adopted because everybody else has adopted it. Out of 117 chemical firms approached, 107 were found to allow a cash discount—usually about one per cent. On the question of loss or gain, 41 firms thought they gained, 46 believed they lost, while 20 were undecided. Asked whether they believed that cash discounts should be abolished and whether they would co-operate in abolishing them, 57 firms answered "Yes" and 60 "No." On the question of difficulties over the strict enforcement of cash discount periods and terms, the vote was less pronounced, 68 firms confessing to the existence of such difficulties and 39 being happily free.

The main reason assigned for the cash discount was that it was "trade custom," but some definite advantages were specified. The discount, it was estimated, reduces collection expenses by about 50 per cent.; it helps to keep a business in a more liquid condition; it supplies a useful warning when a customer fails to take advantage of it; it promotes a quicker turnover; and finally, it prevents unscrupulous buyers who make an unfortunate purchase on a falling market from making fictitious complaints about goods that are paid for. On the other hand, it is admitted that a proportion of buyers who take the discount neglect to pay within the specified period, and that in such cases it is difficult to enforce the terms without antagonising the buyer. The latter difficulty, however, is universal. To ask anyone to pay what he admittedly owes is to run the risk of offering him a mortal affront, and in the case of a regular customer the buyer often gets the benefit of the discount, together with a certain period of grace. Yet this is not strictly business; it should be a point of honour with anyone who accepts a concession to observe the conditions on which it is granted. It would be interesting to hear what British opinion on the point is.

The Taxation of Science

THE August issue of The Journal of the British Science Guild is a particularly interesting number. In addition to the papers at the annual meeting by Sir Richard Redmayne on "The Future of the Coal Mining Industry" and Dr. E. F. Armstrong on "Dyestuffs," it contains a learned article on "The Taxation of Scientific Institutions," a subject in which such bodies as the Chemical Society are very directly interested. From time to time unfortunate bodies have managed to get a little relief, but the Income Tax authorities are a very hardened class, and in a legal contest they can generally find some unsuspected proviso or definition to bring the unfortunate appellant within their power. In the case of an appeal to their sympathy, they have been known sometimes to relent a little; but the institution or the individual who challenges their rights must expect to find them merciless.

From the British Science Guild's review of the leading cases on the subject, it appears, as the Institute of Chemistry points out, that although provision has been made for exempting from taxation, to some extent at least, property or the income therefrom devoted not only to charitable purposes but also to the advancement of science, literature and the fine arts, the Commissioners do not lightly grant such exemption. That is moderately put. It should be possible, however, under the law as it at present exists for scientific institutions to obtain complete or part exemption from taxation either under the provisions specifically mentioning such institutions, or on the ground that their property is utilised for charitable purposes only. The legal definition of charitable purposes embraces the relief of poverty, the advancement of education, the advancement of religion, and other purposes beneficial to the community; but professional bodies such as the Institute of Chemistry, which embraces objects other than the advancement of science, are debarred from claiming any such exemption. The Institute, however, heartily sympathises with the Chemical Society, feeling that its rights should not be questioned, since it has for 80 years consistently advanced science by the publication of new knowledge, while its members, in addition to paying their own personal taxes, have thereby borne a financial burden in a manner that has only been rendered possible by the Society enjoying rent free accommodation and relief from taxation. This subject, we understand, has been under the consideration of the British Association, in collaboration with representatives of other bodies, and it has been proposed that two test cases should be heard, the Treasury paying the cost for both sides of these actions, but the costs on behalf of the societies concerned being limited by a prescribed scale of costs.

The Calendar

Sept 24 to 27	Association of Special Libraries and Information Bureaux: Third Conference.	Balliol College, Oxford.
25	North of England Institute of Mining and Mechanical Engineers: General meeting of Associates and Students Section. "The Chemical Relations of the Principal Varieties of Coal." Professor George Hickling. 3 p.m.	Lecture Theatre of the Institute, Newcastle-on-Tyne.
26—Oct. 3	**Société de Chimie Industrielle: Sixth Congress of Industrial Chemistry.**	Brussels.
Oct. 1	Faraday Society: General Discussion on "Physical Phenomena at Interfaces, with special reference to Molecular Orientation." 2.30 p.m.	Burlington House, Piccadilly, London.
4	Sir John Cass Technical Institute: Inaugural Ceremony. Address by Sir Charles C. Wakefield. 8 p.m.	London.

Shipping of Dangerous Chemicals and Explosives

Regulations for Carriage of Various Substances

The Board of Trade has issued a "Memorandum Relating to the Carriage of Dangerous Goods and Explosives in Ships" (London: H.M. Stationery Office. Pp. 102. 6d.). It includes a list of conditions of carriage of a large number of substances, notes on the more important ones being reproduced below.

Two points are especially deserving of attention in regard to the shipping of dangerous goods and explosives. Firstly, it is stated in the Merchant Shipping Act, 1894 (446, 3), that "for the purpose of this part of this Act the expression 'dangerous goods' means aquafortis, vitriol, naphtha, benzine, gunpowder, lucifer matches, nitroglycerine, petroleum, any explosives within the meaning of the Explosives Act, 1875, and any other goods which are of a dangerous nature"; and furthermore, the Explosives Act, 1875 (3, 1), lays it down that "the term 'explosive' in this Act means gunpowder, nitro-glycerine, dynamite, gun-cotton, blasting powders, fulminate of mercury or of other metals, coloured fires, and every other substance, whether similar to those above mentioned or not, used or manufactured with a view to produce a practical effect by explosion or a pyrotechnic effect."

Accellerene or Paranitrosodimethylaniline when dry is liable to spontaneous combustion and may take fire. It is poisonous and will discolour foodstuffs and other materials. It may be carried in emigrant ships in a limited quantity only, with at least 50 per cent. moisture, packed in strong sound water-tight casks or iron drums.

Acetic Acid may be carried in any ship. It is a corrosive liquid with a strong pungent smell. It may be carried in drums or sound casks under deck.

Acetic Acid (*Glacial*) is a powerful corrosive and an acid poison. It may only be carried in emigrant ships with special stowage and away from all foodstuffs and subject to the permission of the Emigration Officer. It is usually packed in securely closed carboys or demijohns packed in double wicker hampers with wicker bonnets, firmly fixed in strong flat-bottomed crates—not more than two in a crate.

Acetone must not be carried in emigrant ships or in ships carrying explosives. It is highly inflammable, its vapour igniting at the ordinary temperature. It may be carried in ships other than emigrant ships under the same conditions as petroleum spirit. Cylinders filled with porous material and charged with acetone only may be carried under deck in emigrant or passenger ships.

Ammonia, Aqueous Solution of, Specific Gravity ·880 *at* 60° *F.* may not be carried in emigrant ships without the permission of the Emigration Officer. In other ships aqueous ammonia solution of the above strength if carried through the tropics may be contained in steel drums of not more than twelve gallons capacity, provided that the drums have been tested, and withstood a water pressure of 66 lb. per square inch. An empty space of not less than 5·33 per cent. of its capacity should be left in each drum. The drums should be packed in cases, holding not more than four in a case, with sawdust filling in the interstices between the drums. The solution may also be conveyed through the tropics in steel casks of not more than ninety gallons capacity, provided the casks have been tested by water pressure to 75 lb. per square inch, and that an empty space of not less than 10 per cent. of its capacity is left in each cask when shipped.

Ammonia, Aqueous Solution of, Specific Gravity of ·900 *to* ·959 may be carried under the same conditions, and in similar packages, but the drums need only be tested to 60 lb. per square inch, and the casks to 66 lb. per square inch.

Aniline Oil gives off a poisonous vapour. It may be carried on deck in emigrant ships provided it is packed either in small tins or wooden cases or in strong drums packed and stowed to the satisfaction of the Emigration Officer. It may be carried under deck in ships other than emigrant ships provided it is stowed away from foodstuffs and living quarters and is packed in hermetically sealed drums. Steel drums or steel barrels up to ninety gallons capacity may be used provided they are fitted with efficient screw plugs.

Aniline Salt may be carried in any ship if packed in iron drums or sound wet casks, or, provided the salt is dry, in paper-lined casks or cases. It may be carried under deck, but being poisonous, must be stowed away from all foodstuffs and alkalis.

Aqua Fortis or Nitric Acid must not be carried in emigrant ships or in any ship carrying explosives or under deck in any ship. It must be packed in cases each containing four two and a half gallon glass carboys, or stone jars packed in Kieselguhr or other material on which the acid has no chemical action. The maximum gross weight of any one case must not exceed 3 cwt. Synthetic nitric acid may also be packed in strong aluminium-lined drums fitted with efficient screw plugs. The drums should not be of greater gross weight than 2 cwt. Great care must be taken that this acid is stowed away from all other acids and inflammable goods.

Carbolic Acid (*Phenol*) may be carried in emigrant ships if packed in hermetically sealed, strong, sound steel drums containing about 3 cwt., packed in a wood overkeg, the space between the drum and overkeg being filled with sawdust, provided it is stowed in a cool place away from foodstuffs and to the satisfaction of the Emigration Officer. It may also be carried in medicinal quantities if contained in small bottles packed in sawdust in cases. When carried in vessels other than emigrant ships it must be packed in thoroughly sound drums or wet casks.

Carbonic Acid (*Liquefied*) may not be carried as cargo in emigrant ships without the permission of the Emigration Officer. If cylinders of carbonic acid are carried in other ships as cargo, the shippers should be asked to produce a certificate to the effect that the recommendations of the Home Office Committee of 1895 on compressed gas cylinders have been complied with. The cylinders should be encircled by coir rope matting or other equally efficient protection, and they should be stowed under deck in a cool, well-ventilated space.

Caustic Potash is the solid hydrate of potash, and is very corrosive. It may be carried below deck in any ship provided it is packed in sound iron or steel drums and so stowed that no leakage can come into direct contact with crew or passengers and in a separate compartment from explosives. If loosely packed in strong water-tight oak casks, it may, so far as the Board of Trade are concerned, be carried under deck in coasting or home trade vessels and as deck cargo in any ship.

Caustic Soda may be carried under the same conditions as caustic potash.

Chemicals and Drugs when packed in small quantities may be carried in emigrant ships if stowed to the satisfaction of the Emigration Officer. In other ships they may be carried either on or under deck according to the flash point. They should be contained in strong glass bottles not exceeding one Winchester quart capacity, or in earthenware jars or small hermetically sealed tins containing not more than 10 lb. each, packed in casks, cases, boxes or crates. The total weight of any package should not exceed 2 cwt. In the case of liquids, an absorbent packing material on which the contents have no harmful action must be used in sufficient quantity to ensure the complete absorption of the contents in case of breakage. When shipping mixed consignments, care must be exercised that drugs or chemicals which will react on each other in case of breakage, are placed in separate packages, and such packages are stowed apart from each other.

Chlorine Gas must not be carried in emigrant ships. It may be carried in other ships provided the containing cylinders are in accordance with the recommendations of the Home Office Committee of 1895, and do not exceed 9½ in. diameter

or 5 ft. 6 in. in length or weigh, as stowed, more than 2 cwt. each and are protected by coir rope matting or other equally effective protection. The dimensions above mentioned may be slightly varied provided the cubic capacity does not exceed 4,650 in. The cylinders must not be stored near consignments of sodium, potassium, phosphorus, copper leaf, powdered antimony, turpentine, ammonia or salammoniac. It should be carried under deck in a cool, well-ventilated space.

Dye, Materials used in the Manufacture of:—binitrobenzol (wet pellets), binitrotoluol (solid), binitrotoluol (liquid), dinitrobenzol, metaphenylenediamine, metatoluylenediamine, myrbane oil or nitrobenzol, orthonitrotoluol, orthotoluidine, paranitrophenol, paranitrotoluol, xylidine. These substances may not be carried on emigrant ships without the permission of the Emigration Officer. When carried in other ships they should be contained in wet casks or hermetically-sealed drums and given special stowage away from foodstuffs and not in proximity to detonators. Steel drums or steel barrels up to ninety gallons capacity may be used provided they are fitted with efficient screw plugs.

Hydrocyanic Acid Gas must not be carried in emigrant ships. In ships carrying explosives it may only be carried if the engine room and boiler room intervene between the holds which contain the explosives and the gas. It is intensely poisonous, with an odour of bitter almonds that is not perceptible to many people. Even in a diluted state it causes paralysis of respiration and of the spinal cord and deep insensibility. It is highly dangerous for use on board ship unless it is expelled from all compartments by use of windsails, in addition to the opening of hatchways, etc. The danger is increased by the imperceptibility of the gas. Shippers should be asked to produce a certificate to the effect that the recommendations of the Home Office Committee of 1895 on gas cylinders have been complied with and that the cylinders have been tested within the last two years. The cylinders must be carried singly and encircled by coir rope matting or other equally efficient protection. They should be stowed under deck in a cool, well ventilated space.

Hypochloric Acid Gas must not be carried in emigrant ships or in ships carrying explosives. It is a highly explosive gas, a very slight rise in temperature causing a violent explosion. Shippers should be asked to produce a certificate to the effect that the recommendations of the Home Office Committee of 1895 on gas cylinders have been complied with and that the cylinders have been tested within the last two years. The cylinders must be carried singly and encircled by coir rope matting or other equally efficient protection. They should be stowed under deck in a cool, well ventilated space.

Oxide of Iron, Spent, may not be carried in emigrant ships without the permission of the Emigration Officer or under living quarters in any ship. Spent oxide of iron is the term applied to a low grade of iron ore commonly known as bog ore after it has been used in the purifying of coal gas and has become saturated with sulphur during the process. When taken from the gas purifying vessels it is hot and gives off fumes and is generally weathered and cooled for five or six weeks before shipment. It is not considered "dangerous goods" for transport in the coasting and home trade if weathered and cooled as above described, but the period should be increased to six months before shipment for a foreign-going voyage. It should be stowed in a well-ventilated hold and properly trimmed to prevent shifting, but should not be carried in ships having the crew berthed in lower forecastles, unless an absolutely gas-tight steel bulkhead intervenes.

Phosphoric Acid, Specific Gravity 1,750, may not be carried in an emigrant ship without permission of the Emigration Officer. It may be carried under deck in cargo or passenger ships if contained in strong stoppered 10 lb. bottles packed with straw in strong wooden cases with not more than six bottles in each case or in hermetically sealed jars or carboys each containing not more than four gallons, each wrapped in straw, and two such jars packed in a strong wooden case tightly packed with straw. *Phosphoric Acid of a Lower Specific Gravity* is much more corrosive, and if shipment overseas is contemplated the suggested packing should be submitted to the Board of Trade for approval.

Potassium Cyanide may not be carried in emigrant ships without the special permission of the Emigration Officer. In all cases it should be packed in hermetically sealed iron drums, or in hermetically sealed tin or zinc cases enclosed in strong iron-bound wooden cases. The drums or cases should not exceed 250 lb. gross in weight. This substance is very poisonous, and in one case a person handling damaged drums was fatally poisoned by absorption through an abrasion of the skin. The drums or cases must therefore be substantial and be carefully handled. As regards danger from fire, the Board of Trade are advised that this substance is no more dangerous than many other carbonaceous materials, such as coal, etc., and that no special precautions against fire are necessary. The attention of the Board has been called to a case in which a fire occurred amongst a cargo of potassium cyanide on board ship and the persons engaged in extinguishing it suffered a good deal from the fumes arising from the cargo. The Board are advised that potassium cyanide, in the presence of moisture and carbonic acid, decomposes and gives rise to the poisonous compound, prussic acid, and that even exposure to ordinary air will in time lead to this result.

Sulphur Dioxide may not be carried on emigrant or passenger steamers without special permission from the Board of Trade. On cargo vessels the carriage of siphons should be confined to deck cargo, and the siphons should not be more than seven-eighths filled and should be packed in a case and embedded in coke breeze. Metal cylinders should be enclosed in stout rope mat or in wooden cases to prevent concussion, and should be kept cool and away from the living quarters; they should be readily accessible, and be stowed under deck in a cool and well-ventilated space. Sulphur dioxide is neither combustible nor explosive, is not corrosive (in the sense in which aqua fortis and oil of vitriol are), and is not "dangerous goods" within the meaning of Section 446 of the Merchant Shipping Act, 1894. It is a heavy suffocating gas at ordinary temperatures and under atmospheric pressure, but is a liquid at ordinary temperature if kept in vessels under a pressure of about three atmospheres. The latter state is its usual condition when stored in glass siphons or in metal cylinders. If the vessels burst or the gas leaks, gaseous sulphur dioxide is discharged into the air, and in confined spaces this is dangerous. The pressure of liquid sulphur dioxide rises rapidly with increasing temperature, and for this reason vessels containing it should not be carried if more than seven-eighths filled. Siphons and cylinders containing sulphur dioxide must be kept in a cool place away from boilers and protected from the direct action of the sun's rays. The cylinders used for transporting this substance may be of wrought iron instead of steel. The Board are advised that the packing of sulphur dioxide in powdered chalk, as specified in some of the previous editions of this Memorandum, is undesirable.

Sulphuric Acid, Oleum or Nordhausen Sulphuric Acid may not be carried in emigrant ships. *See* Section 301, Merchant Shipping Act, 1894. In ships carrying explosives it may only be carried if the engine and boiler room spaces intervene between the explosives and the hold in which this substance is carried. The question having arisen as to the conditions under which strong sulphuric acid contained in electrically-welded steel drums, or welded by other approved methods—holding about half a ton each—could, with proper regard to safety, be carried on board ship and stowed under deck, two steel drums were tested to destruction.

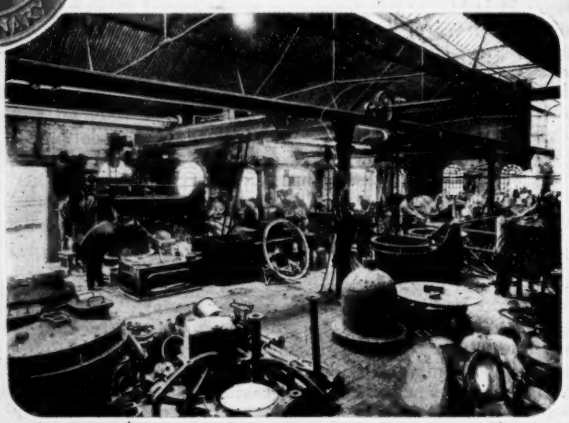
The ends were flat and flanged at the periphery and electrically welded to the body. The results showed that they were strong enough to withstand rough usage when filled with sulphuric acid. The acid can be carried with safety under deck if a layer of slack coal, not less than one foot in depth, is laid at the bottom of the hold and carefully levelled off. Then a tier of drums should be stowed upon it, and when the first tier is completed additional coal should be added and levelled off (slack coal known as "breeze," "smithies," "smalls," or such trade types of coal can be used for this purpose). A further tier of drums can then be laid, and the process of filling in with the small coal again resorted to, and so on to a height of as many as four tiers.

Glimpses of the Chemical Plant Works of Cannon Iron Foundries, Ltd.

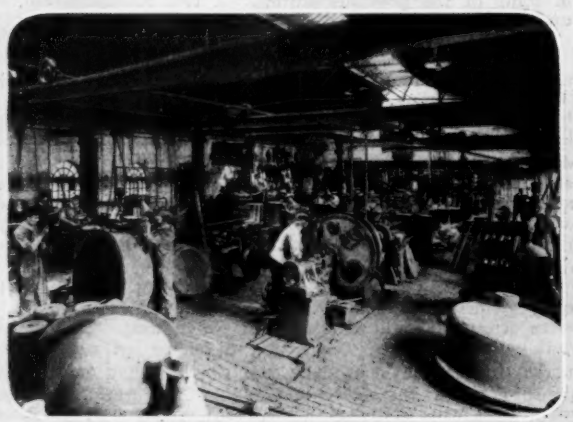
1.—Foundry Yard.

2.—The Large Foundry.

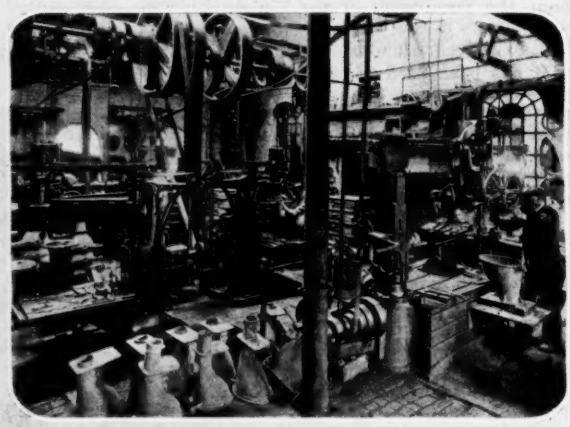
3.—Loading a Muffle Furnace.



4.—General View of Fitting Shop.



5.—Typical Chemical Plant Productions.



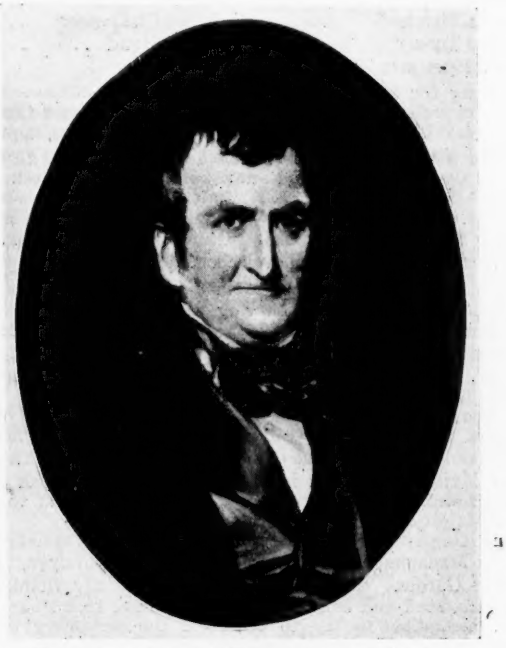
6.—High-Speed Drills.

One Hundred Years of Progress

Centenary of Cannon Iron Foundries, Ltd.

On Saturday Cannon Iron Foundries, Ltd., celebrated the centenary of the foundation of the firm. A sketch is given below of the history of the company, with an account of the centenary celebrations at Blackpool.

LAST week the well-known chemical plant manufacturers, the Cannon Iron Foundries, Ltd., celebrated the centenary of their foundation. To our readers the firm are known mainly for their chemical plant productions, but they are equally well known in other fields for their hollow-ware, grindstones, gas cooking and heating apparatus, and many other classes of manufactures. Some account of the history of so successful an undertaking is of personal and industrial interest. A hundred years ago Deepfields, where the present factory of the Cannon Iron Foundries is situated, was a village known only to the few inhabitants of the country immediately surrounding

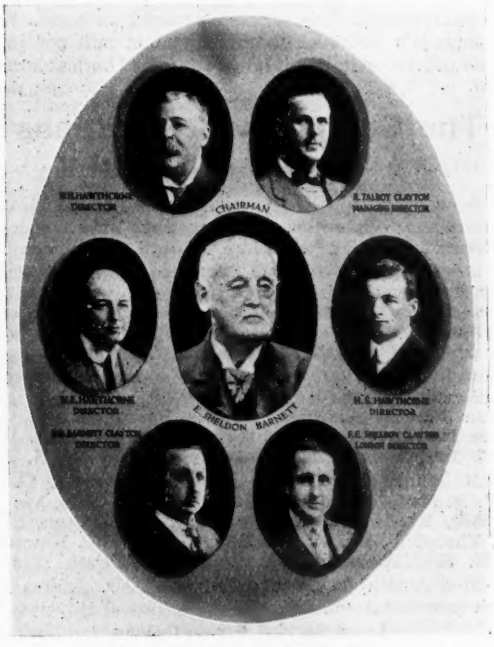


EDWARD SHELDON, FOUNDER OF THE FIRM.

it. To-day its reputation is almost world-wide. To Edward Sheldon must be given the credit of founding a business the present ramifications of which were undreamt of in his day. Originally the firm were known as Edward and Stephen Sheldon, and from records which have been preserved it would appear that the foundry when established covered barely half an acre of land and employed no more than 15 or 20 people. The various designations of the firm have been :— 1826 to 1883, Edward and Stephen Sheldon, Edward Sheldon, and Edward Sheldon and Co. ; 1884, " Cannon " Hollow-ware Co., Ltd. ; 1900, Cannon Iron Foundries, Ltd.

The mainstay of the business in its earliest days was domestic hollow-ware. To-day that business is still an important section of the firm's activities, but there have been added from time to time " Porceliron " sanitary ware, chemical ware, grindstones, and last, but probably most important of all, gas cooking and heating stoves. For the establishment of this department Alderman Richard Clayton was primarily responsible. Alderman Clayton's advent into the business was in 1874, in which year he married a daughter of Mr. William Barnett, the latter being a son-in-law of the founder, Edward Sheldon. Mr. William Barnett had associated with him in management and control Mr. John Hawthorne, another son-in-law of Edward Sheldon, and following their demise, their sons, Mr. W. H. Hawthorne and Mr. Edward Sheldon Barnett, who are still members of the Board, assumed control. Then came Mr. Richard Clayton, who was blessed with wonderful foresight and business ability, and from the day of his appointment as managing director the progress of the firm was exceptionally rapid and successful. To his far-seeing policy and judgment the present position of the firm must be attributed. On his death he was succeeded by his son, the present managing director, Mr. R. Talbot Clayton, who possesses many of his father's characteristics and has successfully carried on the administration of the industry.

Mr. Talbot Clayton in his administrative capacity has the advantage of the continuous support of Messrs. Edward Sheldon Barnett and W. H. Hawthorne, the first in the capacity of chairman of his board, and the second as a co-director. He has also the collaboration of his two brothers, Messrs. R. Douglas B. Clayton and Francis E. S. Clayton (the latter controlling the firm's London interests), together with Messrs. H. S. and W. E. Hawthorne. But it would be the last desire of every one of the men who rule to ignore the inestimable value of those who serve—especially those who have served, as records show, over a score of executives, for periods varying from 30 to 50 years, and who are still in active service. The minds that rule and the hands that serve have proved in this case an ideal combination, and to both must be allotted equal credit for the present position of the organisation. Each in their way have played their part and made it possible to record these figures on the occasion of the company's centenary : 1826 : Premises covered, half an acre ; market extremely limited ; staff and workpeople employed, 15 to 20. 1895 :



THE PRESENT DIRECTORATE.

Floor space of gas stove department, 300 square yards. 1926 : Premises cover 20 acres ; market, the world ; 800 to 1,000 workpeople ; site of 12 acres. It may be added that throughout it has been a purely British business built up on British capital and British effort.

The remarkable growth of the British chemical industry, and the many discoveries and increasing activities of those engaged in it, naturally led the company in the early stages of the business to inquire how it could take some part in this branch of British trade. Naturally it could not be as manufacturing chemists, but the very nature of the Cannon calling pointed to another important manner in which the firm could be linked up with the industrial chemist. From the very first

the company had specialised in cast iron vessels of every description, and bringing all this experience to bear on the question, the way was opened for the production of Cannon cast iron chemical plant—destined in later years to become one of the most important branches of the business and to achieve a reputation throughout the industry. So extensive has the company's experience been in this connection that to-day plant is frequently designed and manufactured to meet the special requirements of individual customers, and in many instances advice is solicited and willingly given as to the types most suitable for particular purposes. The bulk of Cannon cast iron chemical plant is, in view of its nature, lined with a special acid-resisting enamel, which is of such a character as to withstand very severe tests. This enamel has the special characteristics of adhesiveness and tenacity, and is of a highly vitrified character. This would be immediately apparent to anyone who could see a section of, say, a Cannon evaporating bowl—the inseparability of the cast iron shell and lining would then be obvious.

It would be impossible here to give a full list of the many articles manufactured for the chemical industry, but among them may be mentioned autoclaves, boilers, bowls, condensers, crystallisers, digesters, evaporating, mining, vacuum and steam jacketed pans, stills, tanks, and the like. These have been supplied to the British and French Governments and the leading manufacturers in the chemical industry for such varied purposes as mixing, nitrating, evaporating and condensing, distilling, crystallising, and the preparation of pharmaceutical products, aniline dyes, etc. Further, quite a considerable output is maintained in laboratory sundries, for which a large number of enamel-lined cast iron vessels are made. Tremendous developments took place throughout the chemical trade during the war years, and the experience and knowledge then gained has, in the Cannon case, been successfully applied to the production of plant for more peaceful purposes. To-day the company's activities in this direction still continue to increase and its reputation is fully maintained both at home and abroad.

The Centenary Celebrations

A Joyous Day at Blackpool

(From Our Own Correspondent.)

Blackpool, Saturday.

The centenary celebrations were organised on a lavish scale, and even this popular Lancashire pleasure resort, accustomed as it is to large crowds, was impressed by the invasion of nearly a thousand workers and guests who were entertained here to-day by Cannon Iron Foundries, Ltd. Two special early morning trains composed of dining cars conveyed the party from the industrial Midlands to Blackpool; breakfast was served on the outward journey, supper on the return, and lunch in the huge lounge of the Winter Gardens. Mr. E. Sheldon Barnett (chairman of the Board), whose doctor forbade his attendance, sent a cheery greeting. Mr. W. H. Hawthorne presided, and he was supported by Mr. R. Talbot Clayton (managing director), Mr. R. D. Barnett Clayton, Mr. F. E. Sheldon Clayton, Mr. J. Wilfred Harris, Mr. John Whitehill, Mr. Howard Whitehill, Mr. John Mason, Colonel J. H. Thursfield, Mr. Francis Pepper, Mr. W. E. Hawthorne, Mr. H. S. Hawthorne, Mr. J. Burton D'Eath (London), Mr. Alfred Austin (chief representative), Mr. Andres Appel (Dutch representative), and Mr. R. B. Bithell (Liverpool).

Long Service Presentations

During the proceedings the managing director presented inscribed gold watches to twelve long service men on the staff, and leather wallets of Treasury notes—some containing £10 and others £5—to quite an army of long service men from the works. Every worker received a bronze commemorative medal, there was a box of chocolates for every woman worker, and a box of cigarettes for every man.

The twelve long service members of the staff, whose total record amounts to 507 years of service, were the following:—

	Years		Years
Edward B. Crump	51	James W. Wright	40
John Mason	44	John Hinckes	40
Wm. Hawkins	44	James A. Hancock	40
George D. Lloyd	44	Ernest Flavell	40
Walter R. Hawkins	42	Isaac Grainger	40
Wm. Caddick	42	John Cheshire	40

In the works the record of service goes to Benjamin Worton, who was for 71 years employed by the company and is now a pensioner. Other records are given below of workers at present employed:

	Years		Years
William Bradley	56	John Davies	44
James Cope	55	Arthur Cresswell	43
William Caddick	54	William Martin	43
Samuel Turley	54	Joseph Nock	43
Thomas Aston	52	David Lane	43
Joseph Edwards	50	Tom Penn (sen.)	43
Edward Bradley	50	Jonah Smallman	43
Thomas Richards	48	Albert Law	43
William Taylor	48	William Cooper (sen.)	42
Samuel Thompson	47	William Howell	42
William Barratt	46	Thomas King	41
John Hand	46	Wm. Nock	41
Thomas Southall	46	James Steward	41
Thomas Taylor	45	Benj. Creswell	40
Charles Fletcher	45	James Challenger	40
Charles Turner	44	Harry Hand	40
Alfred Byewater	44		

During the luncheon proceedings Mr. John Mason (secretary), expressing thanks to the directors, said that the staff and workers desired to mark the great occasion, and had decided to endow a cot to be known as the Cannon Centenary Cot in the Wolverhampton and Staffordshire Hospital. The firm had agreed to contribute half the cost—£250—and of the rest, 70 guineas had already been promised. The business, added Mr. Mason, was still making progress, and it was sounder to-day than it had ever been. (Cheers.)

Royal Messages

During the day the following messages passed between the firm and the King and Prince of Wales. The following telegram, signed by Mr. R. Talbot Clayton (managing director) and W. Bradley, a worker of 56 years' service, was despatched to the King:

"The directors and over 800 staff and employees of the Cannon Iron Foundries, Ltd., of Bilston, assembled here in Blackpool to celebrate the company's centenary, and knowing Your Majesty's interest in the furtherance of British trade, desire humbly to express their keenest loyalty and to wish Your Majesty long life and happiness."

The King's reply, sent from Balmoral Castle, was as follows:—"The Managing Director, Cannon Iron Foundries, Ltd., Winter Gardens, Blackpool. The King heartily thanks the directors, staff and employees of the Cannon Iron Foundries, Ltd., assembled to-day to celebrate the centenary of the company for their loyal message, and His Majesty wishes continued prosperity to the firm."

The telegram from the Prince of Wales, signed by General Trotter, was in the following terms:—"The Prince of Wales thanks the directors and staff of the Cannon Iron Foundries for their kind telegram of good wishes which His Royal Highness heartily reciprocates."

The day at Blackpool was one that will be long remembered in the history of the firm. The most complete arrangements had been made for the comfort and entertainment of the party, and the weather being gloriously fine, the celebrations were a complete success.

"Petrol-Less" Motors

A competition organised by the Automobile Club of France has successfully demonstrated the possibilities of motoring without petrol. The competitors had to run 1,000 miles without using a drop of ordinary fuel. Twenty-six vehicles were entered for the contest, and all accomplished the trip without mishap. Two were ordinary Parisian taxicabs, running on a fuel obtained from sawdust and mixed with paraffin and alcohol. Two others were driven by a mixture of alcohol, naphthalene, and a certain by-product from the gasworks. Compressed methane gas served as fuel for two vehicles, while four more ran on acetylene gas generated en route. The most striking success was obtained by vehicles relying on gases generated from charcoal. There were sixteen of these, all of which made good speeds and provided fresh data for those who contend that France has sufficient power in her vast areas of timber to drive her motor traffic without having recourse to foreign petrol supplies.

Chemicals and Allied Products in Canada

Statistics of Production and Imports

The Mining, Metallurgical and Chemical Branch of the Dominion Bureau of Statistics (Canada—Department of Trade and Commerce) have issued a detailed report on "Chemicals and Allied Products in Canada, 1924" (Ottawa: F. A. Acland, 1926, pp. 106, 25 cents). We give below an account of the more important features of the volume.

THE production of chemicals and allied products in Canada during 1924 reached a total value of $108,217,237 as compared with $111,244,156 in the preceding year. The manufacture of heavy chemicals and the production of medicinal and pharmaceutical preparations showed increases. The coal-tar distillation industry, the manufacture of inks, dyes and colours, the fertiliser industry, the wood distillation industry and the numerous small plants producing miscellaneous chemical products held their standing fairly well in comparison with the preceding year; explosives, ammunition, fireworks and matches, the manufacture of soaps, washing compounds and toilet preparations, and the paint and varnish industry showed slightly lower outputs. Employing 13,796 persons to whom 17 million dollars were paid in salaries and wages, the 457 plants reporting in the chemical industries of Canada in 1924 represented a capital investment of 126 million dollars and used materials costing 54·3 million dollars in the production of commodities having a selling value of 108·2 million dollars. The value added by manufacture thus amounted to 53·9 million dollars.

Price fluctuations in post-war years have made it difficult to determine the actual growth of industries when data on values only are available for comparison. Taking the average prices prevailing in 1913 as 100, the index of prices for chemical products, computed by the Bureau of Statistics and weighted according to the volume of trade in the 13 commodities listed showed an average of 223·3 in 1920; declined to an average of 184·7 in 1921; dropped further to 166·4 for 1922 and to 164·8 for 1923; and stood at 161·8 for 1924. By applying these index numbers to the actual production for each of the five years mentioned, it is possible to obtain figures which perhaps more nearly represent the growth in quantity production than do the gross selling values of the products made in each year.

For example, the aggregate production in 1920 was valued at $124,545,772; the index number of chemical prices for the year was 223·3 in comparison with 100 for 1913 prices; the application of this factor to the gross value of production mentioned above, show that the output of chemicals and allied products in Canada during 1920 computed on the base of 1913 prices was actually worth $55,990,000. Computed on the same basis the production in each of the next years was valued as follows: 1921—$48,140,000; 1922—$57,650,000; 1923—$67,480,000; and 1924—$67,091,000. These figures give a better indication of the growth in quantity production of chemicals and allied products in Canada than do the actual market values of the outputs and make it apparent that the peak in production values reached in 1920 was very largely due to enhanced commodity prices, and also that the volume of production in each of the last three years was in excess of the 1920 total. Thus computed, the volume of production in 1923 would then be the highest on record, but only slightly above the output in 1924.

Details of Industries

By industries, the acids, alkalis and compressed gases group led the list with a total production value of $26,241,722, followed by paints, pigments and varnishes, $20,200,824; soaps, washing compounds and toilet preparations, $15,965,318; medicinal and pharmaceutical preparations, $13,350,347; explosives, ammunition, fireworks and matches, $13,310,315; and the miscellaneous chemical industries group with products valued at $10,294,171. Products of the inks, dyes and colours industry, wood distillates and extracts industry, and of the coal tar products, each exceeded 2 million dollars; and the output of fertilisers was above the million dollar mark.

In recent years there have been considerable changes in Canada's foreign trade in chemical products. In the calendar year 1919, chemicals and allied products imported into Canada amounted in value to 27·2 million dollars; in that year 82 per cent. of these purchases came from the United States, 13 per cent. from the United Kingdom and 5 per cent. from other countries. In the calendar year 1920, imports of chemicals and allied products into Canada were valued at 40 million dollars, but in the four succeeding calendar years the value of these commodities has been at about 25 million dollars annually. The proportion of Canadian purchases from the United States has gradually decreased from 74 per cent. of the total in 1921 to 66 per cent. of the total in 1924. Imports from the United Kingdom during the same years have increased; 12 per cent. of the total for 1921, and 17 per cent. of the total for 1924 were brought in from this source. Imports from countries other than the United States and United Kingdom were greater in 1924 than in any previous year and amounted in all to 4·2 million dollars or 17 per cent. of the total importations of chemical products.

Canada's exports of chemicals and allied products which totalled 28·5 million dollars in the calendar year 1919, dropped in 1920 to 22·3 million dollars and in 1921 to the low point of 10·3 million dollars. There was a slight recovery to a total of 12·4 million dollars in 1922 and in 1923 and 1924 the total exports stood at 15·9 and 15·4 million dollars, respectively. In 1924, exports of chemicals and allied products from Canada to the United States amounted to 48 per cent. of the total. Exports to the United Kingdom stood at 23 per cent. and exports to other countries amounted to 29 per cent. In the export field, electrochemical products led the list. Sodium cyanide, cyanamide and calcium carbide were the three largest items in the group, and the export of acetic acid, much of which is produced from carbide, has also increased in recent years. Canada's other chemical exports of importance include soda ash, cobalt oxides and salts, ammonium sulphate, paints, pigments and varnishes, medicinal and pharmaceutical preparations, soaps (more particularly toilet soaps) and white arsenic.

Coal Tar Products

As regards details of the industries, it may be noted that in the production of coal tar and its products the same number of plants were worked in 1924 as in the previous year, but production dropped half a million dollars to $2,637,573. Of the 14 plants in the group, 8 were primarily tar distilling units and 6 were engaged in the manufacture of disinfectants. As regards acids, alkalis, salts and compressed gases, production increased by over 2 million dollars. Acids, alkalis, and salts were manufactured to a value of $24,190,274. Products made for sale were valued at 16·7 million and intermediate products at 7·4 million dollars, an increase in each case over the corresponding figures for 1923. A great many of the commodities were the products of only one or two firms and are not shown separately but grouped with other items or included under the general heading "other products." Products of the compressed gas industry included acetylene worth $485,839, carbon dioxide valued at $356,679, oxygen worth $893,688 and various other gases to make a total production of $2,051,448.

In the fertiliser industry, while capital employed and the number of employees fell to about half that of the previous year, production declined only 14 per cent. Products made in the fertiliser industry in 1924 had a sales value of $1,277,145 as compared with $1,487,244 in the previous year. This total does not include commodities from the fisheries, slaughtering and meat packing and other industries which are used as fertiliser material. In 1924 complete fertilisers constituted 85 per cent. of the total production. A complete fertiliser is made by mixing the required amounts of materials bearing nitrogen, phosphorus, and potash in order that a sufficient quantity of these plant foods may be present to meet the particular needs of the soil for the crop to be grown. There were 61 million pounds of complete fertiliser made in 1924 as compared with 58 million in 1923, but the production value was less at $1,086,806 as against $1,113,857 in the previous year.

Several manufacturers sold portions of superphosphate after treatment or dilution with a filler to meet requirements.

Over 7 million pounds of superphosphate was sold in 1924 as against 4·6 million in 1923, and the total selling value rose to $73,140 from $53,507 in the previous year. One firm in British Columbia made sulphuric acid from sulphur and Chile saltpetre, using part of the output in the manufacture of fertiliser and marketing the remainder as 50° Bé acid. Imports of chemical fertilisers into Canada during 1924 were valued at about half a million dollars more than in 1923.

The products of the medicinal and pharmaceutical industry are also of a great variety and are largely marketed under individual trade names. The major part of the production in 1924 was listed as patent and proprietary medicines, which had a total value of $6,265,526; medicinal and pharmaceutical preparations came next at $3,783,044, while toilet preparations were valued at $1,503,594 and disinfectants at $55,536, making a total production value of $13,350,347 which was 8 per cent. above the figure for 1923.

Paints, Pigments, and Varnishes

The total production of the paints, pigments, and varnishes industry in 1924 amounted to $20,200,824, which was 6 per cent. below that of 1923. The value of products made for sale fell to $18,187,681 from $20,938,802 in the previous year, but the value of intermediates used, rose to $2,013,143 from $614,356 in the same time. From the point of value, mixed paint ready for use was the chief product with varnishes of next importance and basic carbonate white lead in oil, enamels, paste paints, stains and shellac following in order. Colours in oil and japan, dry colours, dry basic carbonate, japans and lacquers were also among the important products. In 1924 the four firms corroding pig lead produced 6,662,478 lb. dry basic carbonate, 13,039,756 lb. of basic carbonate in oil, 1,390,835 lb. of red lead and 4,758,715 lb. of litharge. All the dry basic carbonate made in the industry was made by these four firms, but some plants bought the dry carbonate, ground it in oil and sold it as basic carbonate in oil, bringing the total production of this commodity for sale and for intermediate use to 14,406,356 lb.

Products of the soap industry in 1924 reached a total value of $13,187,267, a decrease of 12 per cent. from the output value of the previous year. Household, toilet and laundry soaps worth 9·7 million dollars were the principal products, but the production of soap powder nearly reached the million dollar mark. Glycerine, crude and refined, amounted to over a million dollars in value. As regards washing compounds, Javelle water worth $183,083 constituted a little over half of the entire production of this industry, while the value of ammonia powder accounted for about half of the remainder. The total output in 1924 amounted in value to $334,470, thus maintaining the production of the previous year.

In 1924 production of dyes and colours amounted to $457,726, which was about 23 per cent. below the output value of the previous year. Products of the industry include dyes, sugar colouring, butter colouring, straw hat colour and malt flour. Printing inks to the value of $1,348,850 and printers' rollers worth $206,574 constituted the bulk of the products of the printing ink industry, which also included considerable quantities of paints, varnishes, enamels and dry colours and, in 1924, totalled $1,889,242, thus almost maintaining the production of 1923. Products of the writing ink industry were valued at $309,432 which was only 6 per cent. below the output of 1923. Writing inks, mucilage, paste, and carbon papers were the major products.

Wood Distillation

Products of the wood distillation and wood extracts industry in 1924 were valued at $2,283,422 as compared with $2,743,295 in 1923, and $1,902,243 in 1922. Primary production consisted of 2,892,404 bushels of charcoal worth $715,351; 10,889,845 lb. of grey acetate of lime valued at $283,990 and 890,377 gallons of methyl hydrate with a selling value of $705,532, this being an average yield of 50·6 bushels of charcoal, 190·6 lb. of lime acetate and 15·6 gallons of alcohol for every cord of wood used. Over one-half the production of lime acetate and 45 per cent. of the alcohol was treated further to produce 939,278 lb. of acetone, 1,398,989 lb. of formaldehyde and 977,034 lb. of 28 per cent. and 177,520 lb. of 80 per cent. of acetic acid.

As regards miscellaneous chemical products, insecticides manufactured in Canada included paris green, lime sulphur solution, and various arsenic compounds as well as other liquids and powders for fumigation and disinfectant purposes. In 1924, there were 15 firms producing these commodities as major products: 4 of these were located in Quebec, 7 in Ontario, 2 in New Brunswick, and 1 in each of Manitoba and British Columbia. There was 1 less plant in operation than in the previous year, but capital rose to $845,222 from $671,077 and the number of employees to 135 from 116 in 1923. Production amounted to $735,130 in 1924 as against $938,782 in 1923.

Import and export tables are given for the fiscal year ending March 31, 1925, the average of the five previous years being given for comparison. The imports of aniline and coal tar dyes and related products amounted to about $1,500,000, a considerable decrease; of potassium nitrate to $289,268, an increase; of sodium nitrate to $1,051,697, an increase; phosphatic fertilisers to $464,372, an increase; medicinal chemicals, drugs, etc., to $2,617,241, a decrease. In paints and pigments, the largest imports were of zinc white, $927,702, a decrease. Sodium and potassium salts in general (other than those mentioned above) showed a decrease. Industrial alcohols showed a great decrease. On the export side, sulphuric acid amounted to $116,608, an increase; methyl alcohol to $150,456, a decrease; medicinal and pharmaceutical preparations to $526,024, a decrease; calcium cyanamide to $3,460,845, as compared with the previous average of $2,896,809; paints and varnishes to $473,159, as compared with $943,370; calcium carbide to $1,199,248 ($2,720,062); soda and sodium compounds to $3,641,659 ($1,751,412); cobalt oxide and salts to $1,119,109 ($780,674); and glycerin $112,574 ($42,246). Total imports amounted to $24,760,237, as compared with $28,888,349, and exports to $16,209,820, as compared with $16,472,606.

Analysis of imports by countries reveals the fact that (again figures for year ending March 31, 1925, and annual average for previous five years) the United Kingdom exported to Canada to the extent of $4,146,061 ($4,255,555) and imported from Canada to the extent of $3,805,628 ($2,705,986); imports from the British Empire as a whole amounted to $4,247,440 ($4,496,897) and exports to the Empire to $5,228,994 ($4,527,049); imports to and exports from the United States were $16,366,165 ($21,418,770) and $7,826,076 ($9,505,252) respectively. Corresponding figures for imports from and exports to other countries were: Germany, $1,330,292 ($620,318) and $15,713 ($21,333) respectively; France, $943,836 ($1,089,262) and $33,263 ($93,403) respectively; Mexico, imports nil, exports $1,730,052 ($861,876); total for countries outside the Empire, $20,512,797 ($24,391,452) and $10,980,826 ($11,945,557).

British Scientific and Technical Books

THE 1925 supplement of the *Catalogue of British Scientific and Technical Books*, arranged by Miss D. Shaw, has just been issued by the British Science Guild (pp. 166, 2s. 6d). The supplement contains the titles of 2,258 books published in 1925, the original catalogue issued in 1925 having contained 9,515 titles of books of a scientific and technical nature given in current catalogues of British publishers at the end of the year 1924. The catalogue is arranged in sections alphabetically from Agriculture to Zoology, and contains an author index. The titles of publications under the heading of Chemical Industry number 59, and those under the heading of Chemistry number 70. Uniform details are given of each book, namely: author, full title, size, number of pages and plates, year of current edition, publisher's name and price. This book should figure on the shelves of all who are interested in science.

"Carbonation" or "Carbonatation"

A CORRESPONDENT writes: "In the editorial note on 'Ammonia Recovery by Gypsum' on p. 267 (September 18) I notice that the phrase 'Carbonation Process' is used. In the sugar industry we have a similar process and frequently in American publications this phrase is employed, but in England and France it is called a 'Carbonat*ation* Process,' just as we say 'Sulphit*ation* Process,' which, I should say, is more correct. It is certainly *not* a 'carbon*ation*' process."

Reviews

COLLOID AND CAPILLARY CHEMISTRY. By Herbert Freundlich. Translated from the third German edition by H. Stafford Hatfield. London: Methuen and Co., Ltd., 1926. Pp. xv+883. 50s.

The present reviewer many years ago placed on record his wish to see an English translation of Freundlich's "Kapillarchemie," then in its first edition. While he has had to wait a considerable time to see this wish gratified, the delay has at least brought this compensation—that the present translation has been made from the monumental second edition, and further includes all the addenda which constitute the difference between the second and third edition.

The original is now so well known to all students of the subject that little remains to be said about it. The first section, dealing with capillary chemistry in the narrower sense, *i.e.*, with the phenomena at interfaces, and amounting to more than one-third of the work, is the best and most comprehensive account of the subject at present available in any language. The second part, colloid chemistry in the generally accepted meaning of the term, while not quite so unique, holds a very high place among the many text books published in recent years. All facts of any importance have been gathered from a rapidly growing and widely scattered literature, and their theoretical discussion does not stray into the region of mere conjecture or speculation. The author naturally has his preferences—adsorption looms rather largely—but views which differ from his own are generally stated adequately and fairly.

The translation gives the meaning of the original correctly and without excessive pseudomorphs after German constructions. The use of hyphenated nouns and adjectives is hardly to be avoided without circumlocution, but the translator might exercise a little discretion: thus "surface-active" would seem less unpleasant and more correct physically than "capillary-active," as the capillary is merely a means of showing what happens in the surface. Incidentally, there is no reason for introducing a hyphen into "right-angle," and even the corresponding German term does without it. The proofs have been read with astonishing care, and the reviewer has detected one error only: in the equation (2) on page 694, which, though quite obvious, has been copied from the original.

The book is excellently printed and bound; in consequence of the contraction which accompanies translation from German into English, and of a reasonable economy in margin, the number of pages have been reduced from over 1,200 in the original to 883. The translation will be welcomed by all students of the subject who cannot read scientific German "with their feet on the fender": the more so, as the price is very reasonable and compares favourably with that of the original.

E. H.

"THE MODERN SOAP AND DETERGENT INDUSTRY." Vol. 3. GLYCEROL MANUFACTURE. By Geoffrey Martin, D.Sc., Ph.D., F.I.C. London: Crosby Lockwood and Son. 30s.

In the present volume, which completes the work, Dr. Martin deals exhaustively with the manufacture of glycerol, and includes an index to the whole treatise. It is modelled on the same plan as the previous volumes.

Sections 1 and 2 deal with the manufacturing details of glycerine, a particular feature being the numerous working drawings of plant, especially for distillation and evaporation, and the discussion of their individual qualities from the point of view of chemical engineering and running costs, which alone will make the book a valuable one to the chemical engineer and works manager. Section 3 gives a summary of the miscellaneous methods for glycerine production, particularly the fermentation processes developed during the war by Connstein and Lüdecke in Germany, and by Eoff in America. Section 4 deals with the technical application and properties of glycerine apart from explosive manufacture, with which the author has dealt in his previous volume, *Nitrogen Products and Explosives*. One notices in particular the very full discussion of the specific gravity of glycerine which, together with the equally minute details of its accurate determination in Section 6, constitutes a very complete account of this important physical constant. The section concludes with a compilation of statistics of the world trade in glycerine. Section 5 gives a short account of the polymers of glycerine and their estimation, and a chapter is devoted to the various substitutes which were tried, mainly in Germany during the war, such as the esters of phthalic acid and of lactic acid. Only a passing reference, however, is given to ethylene glycol, which is practically the only substitute which appears to be a commercial proposition at present, and one would like some fuller treatment of this. In Section 6, on "The commercial valuation and analysis of glycerol," the author gives full details of the standard methods of estimation, and discusses their relative merits. The questions of sampling and the interpretation of the analytical results are also discussed.

The volume covers the whole subject very thoroughly, and in such a way as to be of practical use to the general chemist who has to deal with technical problems in connection with glycerine. The author has kept to his determination to give a reference to all the patents on the subject, even when they have not proved of commercial importance, and again reminds his readers that the scientific curiosities of to-day are the technical commonplaces of to-morrow. His work places at the disposal of the technical chemist a large amount of detailed information in such a way that it can be referred to readily.

T. HEDLEY BARRY.

THE STATES OF AGGREGATION. By Prof. G. Tammann. Authorised translation from the Second German Edition by R. F. Mehl. Pp. xi+297. London: Constable and Co. 1926. 24s. net.

In this important monograph, which deals mainly with the solid state and its changes into other solid modifications and into liquid, and the reverse changes, the author has incorporated his own extensive researches and the results of others, notably Bridgman, of Harvard, whose work is of fundamental importance in this field. The first part of the book contains an exposition of thermodynamic principles, with special reference to the methods of Gibbs. Nernst's theorem is also dealt with. This section, which is necessarily mathematical, is covered in many special treatises and could without loss have been omitted. The rest of the work is concerned mainly with experimental results, and although mathematical formulæ occur in it (but not very frequently) it will be readily intelligible to readers without any knowledge of the calculus. Many subjects of great practical importance are dealt with, such as annealing, the flow of solids, devitrification, etc., and it would seem that the work should be indispensable to the metallurgist. The author has naturally emphasised his own views, and has not often presented other hypotheses in detail. The work is well illustrated and contains a good deal of numerical data; it is a book which should be in the library of the university or technical laboratory, and will repay study.

J. R. PARTINGTON.

A TEXT-BOOK OF ORGANIC CHEMISTRY: HISTORICAL, STRUCTURAL, AND ECONOMIC. By John Read, M.A., Ph.D., B.Sc. London: G. Bell and Sons, Ltd. Pp. 680. 12s. 6d.

As might be inferred from the title, Professor Read has endeavoured, in the volume under review, to present something more than a dry string of details. The book opens with an account, some sixty pages in length, of the history of chemistry from the earliest times until the point at which the modern form of organic chemistry began to be elaborated. Subsequent chapters deal with those branches of the subject necessary for a sound knowledge of its fundamentals. In general, some of the detail usually included in books of this type is omitted in order to give more space to discussions showing the connection of the subject with other sciences (such as biochemistry) and with general economic considerations. For example, the chapter on monohydric alcohols contains a fairly lengthy discussion of alcoholic fermentation, enzyme action, brewing, the production of industrial alcohol, etc.; a section on glycerides, oil- and fat-hardening, soap-making, and the uses and economic value of fats and oils is introduced under the heading of esters; while the description of disaccharides leads to sugar-production from cane and beet, and the description of carbohydrates to artificial silk, paper, explosives, etc. In discussing the properties of the various substances mentioned fairly extensive reference is generally made to properties and uses other than directly chemical ones.

Chemical Industry in Italy

An Address by Prince Conti

In an address at the opening session of the jubilee meeting of the American Chemical Society at Philadelphia on "The Development of Chemical Industry in Italy," Prince Piero Ginori Conti said that Italy was making substantial progress in this field in spite of difficulties caused by the absence of coal and very modest financial resources. Every step in Italian chemical development meant overcoming a difficulty by sheer hard work. "Our chemical industries," he said, "are not only gradually providing for a very large part of the requirements of our home market, but, in some instances, their output is such as to allow for a considerable export trade. The growing efficiency of our industries, and more especially of our chemical industries, can be traced to the advent of our National Government, in 1923, to the efforts of which are due the renewed spirit of discipline in the working classes and the consequent collaboration of labour and capital, which are indispensable factors for the welfare of industries."

Lack of Oil and Coal

Prince Conti asserted that the artificial silk industry in Italy had won "unprecedented success," the total capital now invested therein aggregating $50,000,000. About one-half of the total Italian output was exported. "A formidable handicap," he said, "is put on all our industries by our unfortunate conditions with regard to coal and oil. Fortunately we have 'white coal' and we have done, and are doing, our best to harness the hydraulic powers obtainable from the Alps and the Apennines, and to utilise in a rational manner the electric power thus generated. Already the large power plants of Northern Italy are working in parallel with those of Central Italy, and soon a huge organic system of distribution will be supplying the needs of our country with transmission lines running from the extreme natural boundaries, which we have at last conquered, down to the very southern end of the Peninsula and indeed as far as the extreme shores of Sicily, as the Straits of Messina are to be spanned by electric lines. A figure of something like six milliards of kilowatt hours represents the yearly consumption of electric power in Italy at the present day, but shortly we expect to increase that figure very substantially and in course of time we hope to double it. All our industries have benefited by the extensive use of electric power and the chemical industries very largely so, but at the same time we have been increasing very considerably our imports of coal—a fact which shows that the progress of work has been very important."

"Italy," he stated, "is a land favoured by nature with all the most splendid gifts of beauty, but, on the other hand, nature does not appear to have been equally bountiful in the matter of one of the most essential industrial commodities. No coal has been, as yet, found in our country, and with regard to oil, we can only hope that some may be found, even if this should mean a very heavy cost. Our National Government has very seriously taken up the matter and has instituted a special research service for exploring the undersoil of our Peninsula by means of the most improved methods, in order to discover the oil beds which we trust will be found in the deeper strata of our undersoil. At Ragusa, in Sicily, some rich bituminous schists have been discovered, and a methodical exploitation of these minerals has been begun. Our only solid fuel is lignite or brown coal, of which there are several important beds in Central Italy and in Istria. Several plants for the extensive and rational utilisation of this fuel have been made, or are in course of study. At the same time, legislative measures have been introduced to ensure economical combustion of all kinds of fuel.

Synthetic Ammonia Industry

The output of synthetic ammonia, according to Prince Conti, has been very considerably increased by new works erected on the Adige near Merano by the "Montecatini" group, which will, when completed, absorb hydraulic power to the extent of 50,000 h.p. Other important ammonia plants are working or are in course of erection in various parts of Italy, and one in Sardinia. The total output of ammonia compounds in Italy, reckoned as nitrogen, amounted to 6,800 metric tons last year. "For the current year," Prince Conti said, "these figures will be more than doubled, and, when the new plants are in complete efficiency, we are expecting to reach a yearly output of about 35,000 tons of nitrogen.

"Caustic soda is another of our chief electrochemical products, and it is generally allied with the production of chlorine, the starting point being chloride of sodium. The industrial progress of a country can be measured by its output in sulphuric acid, and I am, therefore, glad to say that this product is being manufactured on a steadily increasing scale. Over eighty large works supply it. The Italian demand for sulphuric acid is not completely covered by national production. The Italian ironworks are obliged to import large amounts of pig iron, and all attempts to emancipate the country in that direction should be encouraged. Sulphate of copper, an essential and very widely used anticryptogamic agent in vine culture, is manufactured now in such quantities as to meet, almost completely, the needs of the country, wine being one of the chief products of our agriculture.

Coal Tar Production

"Much has been done to increase the output of coal tar, and legislative action has been introduced to ensure the proper treatment of coal in gas and coke manufactures. This will substantially contribute to the further development of our dyestuff industry which began during the war, and which has been steadily progressing notwithstanding the very serious post-war crisis which affected all industries, but particularly this special class. Organic synthetic colours and other types of colouring matters, including synthetic indigo, are being manufactured in growing quantities and a certain amount of export is also noticeable. Boric acid is another essentially Italian chemical product, the manufacture of which began in Tuscany over one hundred years ago. This industry is an instance of thorough utilisation of natural resources."

Chemistry in Warfare

Prince Conti deplored the necessity of enlisting chemistry as an instrument of warfare, and expressed the hope that the science might hereafter devote itself to peaceful pursuits alone. Voicing, he hoped, the views of "an assemblage of colleagues from all the world," summoned to celebrate the Sesquicentennial both of the discovery of oxygen and the Declaration of American Independence, Prince Conti said: "We are all united by one common bond, our love for the great science of chemistry, the influence of which in the management of human destinies is daily becoming more important. Our science has, unfortunately, been called to play a signal part in matters pertaining to destruction. It is a sad thought, and I feel that all my hearers will concur in my heartfelt wish that chemistry may henceforth devote its aims solely to the welfare and to the improvement of mankind."

Alleged Libel on Lever Brothers Directors

William M. Kneale, of Old Hall Street, Liverpool, was summoned by Mr. Francis d'Arcy Cooper, of Lever House, Blackfriars, London, at the Mansion House on Thursday, September 16, for having on July 10 unlawfully and maliciously published a defamatory libel concerning him. The alleged libel was sent to the secretary in a registered letter, and was in these words: Was I right when I stated at the meeting of June 10 that millions (pounds) have been squandered on anything the directors had a whim for, and that for years the company's shareholders have been disgracefully misled by a tissue of lies, deceit, and, as it appeared, false balance-sheets which do not represent the true and correct position? Later on in the same letter was the statement: "Now my next move will be in London." As the directors, counsel said, were all responsible for the balance-sheet which was presented to the shareholders, the letter was a gross libel on them all, and each was entitled to proceed against the defendant, but Mr. d'Arcy Cooper, who was well known in the City as an eminent accountant, had taken upon himself to put a stop to these attacks. The directors were men of the highest character, and when it was alleged against them that for years past they had misled the shareholders by a tissue of lies and deceit, the time had arrived when such attacks must be stopped with the aid of the law.

The Lord Mayor committed the defendant for trial at the Central Criminal Court. The defendant pleaded "not guilty," and, reserving his defence, was admitted to bail in his own recognisances.

Annual Meeting of Nobel Industries

Strong Financial Position

THE annual general meeting of Nobel Industries, Ltd., was held on Friday, September 17, in London, Sir Harry McGowan (chairman and managing director) presiding.

Sir Harry McGowan said that the serious reduction in the output of coal in the United Kingdom which took place in 1925, amounting to some 26,000,000 tons, or nearly 10 per cent. of the 1924 production, materially affected their home trade in explosives and accessories. Notwithstanding the added burden of cost per unit which arose inevitably from a curtailment of output, they felt that they would be justified, in face of the serious position of the coalmining industry, in drawing upon the strength which they derived from their other widespread activities, including their general industrial investments. Accordingly towards the close of last year they made a further reduction in the selling prices of their explosives. Satisfactory progress had been maintained by their Birmingham businesses. Their products of sheet and rolled metal and strip, motorbicycles, radiators and carburetters, and lightning fastener, had a high and well-deserved reputation for quality and efficiency. Detailed and continuous attention was paid to the maintenance and improvement of technical efficiency. Their military ammunition continued to give satisfaction.

Their general export business showed satisfactory progress during 1925, and their investments in associated businesses established on the Continent yielded them satisfactory returns. They continued to compete for European metal and ammunition business, although the extraordinary keenness of competition, assisted largely by the temporary advantages of unstable currencies, made the return on such business for the time being almost negligible. They were, however, establishing a reputation for quality of their products in those European countries which they supplied from their home factories, and as a result they anticipated greater successes in this direction when the stabilisation of European currencies was completed.

Dominion Enterprises

The three great Dominion enterprises—Canadian Explosives, Ltd., African Explosives and Industries, Ltd., and Nobel (Australasia), Ltd.—in which they were so largely interested were growing steadily and were of a profitable character. With the development of those Dominions they had every reason to hope that their investments in those companies would prove more and more valuable. In the spring Mr. R. F. Todhunter paid a visit to South Africa, and had an opportunity of seeing each of the three factories of African Explosives and Industries, Ltd., and of realising the high level of efficiency which they had attained. On the explosives side the relations of that company with the mining interests were of the best, and considerable satisfaction was felt with the reductions in prices which they knew would result from the concentration and consolidation of the various interests in that company. With the opening up of new mineral fields in Rhodesia the demand for explosives would no doubt increase, so that the prospects in that respect are most promising. In the chemical field, including fertilisers, sheep dips, insecticides, etc., the outlook was excellent. Considerable expenditure was being incurred upon research work, and certain portions of the factories in Natal and Cape Province had been organised as experimental stations to demonstrate the value of the use of fertilisers on the various agricultural products of South Africa. That development had been welcomed by the Government and the farmers generally, and had facilitated appreciation of what could be done on the soil with the aid of the proper fertilisers. The company had recently decided to increase its capital by £300,000 to finance the expansion of the chemical side of its business.

Nobel (Australasia), Ltd., commenced business on January 1, 1925, and had had a satisfactory year. While in some parts of Australasia mining prospects were not as promising as they would like to see them, still, on the whole, they had every reason to believe that as time went on new mining developments would occur, and they were pleased with the outlook for that company. On the chemical side of its business, in particular, they saw possibilities of expansion. The South American Explosives Company, whose factory was situated in Chile, continued to progress satisfactorily. They had again to report continued progress on the part of Canadian Explosives, Ltd. Mining developments were on a considerable scale, and it looked as if the mineral resources of that great Dominion had hardly yet been touched. In all branches of its business the Canadian company was doing well, and with its excellent organisation he had no fear for the future of that company.

Extension of Interests

During the past year they had extended their interests in the manufacture of artificial leather by the acquisition of a very substantial holding in the British Leather Cloth Manufacturing Co., which made the well-known Rexine leather cloth. They had now, therefore, two factories engaged in that activity in Manchester, and they looked forward to securing considerable advantages from the consequent fusion of interests. In the paint, varnish, lacquer, etc., trade they were developing the production of the well-known Du Pont Viscolac hard enamel for motor car bodies and other articles, under the name of "Belco." It was being manufactured and sold by Nobel Chemical Finishes, Ltd. (formerly Necol Industrial Collodions, Ltd.), in the ownership of which the Du Pont company, of the United States, was associated with them. Already distinct progress had been made in the manufacture and sale of Belco. That product was giving great satisfaction to the motor trade, and the demand for it was increasing rapidly, not only in this country, but in other Empire markets. Some time ago a fusion of interests in the motor accessories trade took place as between Joseph Lucas, Ltd., C. A. Vandervell and Co., and Rotax Motor Accessories, Ltd., in the last named of which they had a substantial shareholding. In the transaction they exchanged their Ordinary shares in Rotax Motor Accessories, Ltd., for shares in Joseph Lucas Ltd.

Before the war Nobel's were associated with important German manufacturers of explosives. That association had now been renewed through their taking a shareholding in the Dynamit Actien-Gesellschaft and the Köln-Rottweil Company. As a matter of interest, and as it was now more or less public property, he might say that the above companies had entered into a close alliance with the Badische Anilin und Soda-Fabrik (the I.G.)—in their opinion an excellent arrangement. It was impossible to lay too much stress upon the importance of continuous chemical research as the key to the future development of the industries in which they were engaged. German activity in this work had long been notable, and by the new links they had formed with allied concerns in that country they hoped to share in the fruits of that development. But on their own side also they were not idle. Organised research work lay at the root of their future prosperity and for many years they had carried on such work at their largest factory situated at Ardeer, near Glasgow. Recently they had taken steps to improve the organisation devoted to that vital activity.

Holdings in other Companies

As regards their investments, he referred to their holding in the General Motors Corporation. The progress achieved by that concern in 1925 was phenomenal, the total earnings rising to $116,000,000. On his recent visit to America advantage was taken of the market to realise a part of their shares at a handsome profit. They still retained, however, a very substantial holding in the company. In the Dunlop Rubber Co. also they had realised a further part of their holding at a satisfactory profit. They were, however, still substantially interested in the fortunes of the company, which was making good progress. The unfortunate dissensions in British Celanese, Ltd., had their inevitable effect upon the market value of the shares, and they accordingly took the prudent step of writing their holding down to their estimate of its market value. Since then they had disposed of their preference shares.

The report and accounts were adopted, and a resolution embodying the recommendations in regard to the staff pension fund was unanimously approved. The retiring directors, the Lord Cochrane of Cults, Mr. T. R. Curtis, Mr. B. E. Todhunter and Mr. J. Rogers, were re-elected.

An Appeal for Chemistry House

To the Editor of THE CHEMICAL AGE.

SIR,—In an endeavour to address the greatest possible number of chemists I beg to encroach upon your valuable space. I wish to appeal to chemists in general and Associates of the Institute of Chemistry in particular on behalf of Chemistry House. It is a fact that there is at present no one society or association that can satisfy the requirements of both the chemist and his profession. Shortly, one can sum up the situation in the following manner :

The Chemical Society is most useful owing to its publication of research results.

The Institute of Chemistry places a hall-mark on the chemist according to his examination results.

The British Association of Chemists protects the chemist himself by its Unemployment Benefit and Legal Aid Funds.

The Society of Chemical Industry reports on the latest industrial developments in chemistry.

Finally, the National Union of Scientific Workers is not only concerned with the affairs of the chemist, but with those of many allied workers.

Surely the formation of some such body as that which would govern Chemistry House is a dire necessity in the best interests of the country in general and chemists in particular.

The first step in the right direction, namely, the registration of all chemists, whether qualified by diploma or experience, was recommended at the York Conference of the Institute of Chemistry and a committee was set up to consider the necessary steps to be taken.

This action upon the part of the Institute is worthy of laudable praise, but unfortunately now that the crucial moment has arrived, namely, when local sections are to vote upon the matter, the committee recommends that we reject the proposals. Heaven knows that enough ridicule, inspired by selfish and narrow-minded bigotry, has already been levelled at the proposition without the Institute adopting this attitude.

I want to appeal to all Associates of the Institute and all Fellows whom I dare address to vote for the formation of a Register of Chemists, which will eventually become the property of Chemistry House. In sponsoring Chemistry House, the Institute will be making history worthy of its ancestry. If Chemistry House comes into being without the help of the Institute, what will posterity have to say? I am greatly afraid that that attitude would condemn the Institute as wanting at the time when it could be really of some use to chemists.

The Institute will not lose its identity in Chemistry House any more than the other organisations unless this opportunity is wasted.

A writer wrote recently that " When the rank and file of the chemical profession want Chemistry House they will get it." Do your bit and vote for the Register.—Yours, etc.

20, Mount Road, N.W.4. A. W. BARRETT, B.Sc., A.I.C.

Income Tax

To the Editor of THE CHEMICAL AGE.

SIR,—In view of the early issue of the annual notices of assessment to all taxpayers it may not be out of place to call attention to the Finance Act, 1926. This year's Act, unlike all Finance Acts of preceding years, does not provide for new reliefs or make any change in the method of assessment for the current year, although it does make provision for tightening up the methods of assessment and collection. In this connection every person entering an objection must state the grounds of appeal.

The Act in question affects business assessments for the year 1927-28 by altering the basis of computation of business profits. The familiar average will disappear, and its place will be taken by the results of the year preceding the year of assessment; there are also provisions for relief, but they are very complicated and obviously call for the services of experts in taxation.

The taxpayer can, however, protect himself, for the current year, by scrutinising carefully all notices of assessment, demands for payment, and explanations furnished by the Revenue Department. He should satisfy himself that he has obtained the various allowances to which he may be entitled. —Yours, etc.,

67-68, Cheapside, London, E.C.2. W. R. FAIRBROTHER.

United Alkali Co.'s New Offices

Developments at the Gateshead Works

LADY MUSPRATT, wife of Sir Max Muspratt, Bart., chairman of the United Alkali Co., and president of the Federation of British Industries, opened on Thursday afternoon the large new offices of the United Alkali Co. at its Allhusen Works at Gateshead.

For many years the local commercial staff of the company was located in Pandon Buildings, City Road, Newcastle, but with the object of effecting closer collaboration between the commercial, technical and works departments, it was decided to place them all under one roof in a new building in the grounds of the Allhusen Works.

The entire staff is now housed under excellent, well-lighted conditions, the rooms being so arranged that the general manager, Mr. A. N. Davidson, can be in prompt communication with all who serve under him. The architects for the new offices were Messrs. Cackett and Burns Dick, and the contractor, Mr. Stanley Miller, Newcastle.

The Allhusen Works have a long and honourable record in the chemical trade of Tyneside, and the Allhusens, with the Tennants, did much to develop the salt trade of Middlesbrough. Great changes in methods of manufacture have taken place, and the United Alkali Co., formed about 35 years ago, has kept pace with the times.

In the company's new offices, the manager, the chemist, the engineer, the departmental heads, and others responsible for work in the factory are now in adjoining rooms; and this grouping in a single building will, it is believed, tend to greater economy and efficiency.

£500,000 Contract for a British Firm

THE Government of Sao Paulo have recently accepted the tender of Braithwaite and Co. (Engineers), Ltd., England, for the construction of an " Armco " ingot iron pipe line for conveying water a distance of 80 kilometres from the Rio Claro headwaters to a new reservoir to be constructed at Villa Prudents. The contract was obtained in the keenest open competition from both American and continental competitors. Braithwaite and Co. recently completed the largest water pipe line ever constructed, namely, two six foot diameter pipes each 64 miles long for the water supply of the Bombay Corporation. An interesting feature of the present contract is the decision of the engineers responsible for the design to return to the use of iron in place of steel for their water mains. Sixty or seventy years ago, iron was generally the accepted material for exposed structures of all types, but with the advent of steel with its lower manufacturing cost, iron to a great extent was displaced. Latterly, however, engineers have come to realise that the rapid corrosion which takes place with pipes made of steel warrants the use of the slightly more expensive iron by the longer service and better resistance to rust where water mains have to be dealt with.

In the present case, " Armco " ingot iron, which is an extremely pure iron made in an open hearth furnace, was adopted as having better corrosion and rust-resisting properties than either wrought or puddled iron. In this time of depression in the engineering trade, it is pleasing to know that British engineers are sufficiently alive to modern improvements in material and construction to succeed in obtaining contracts such as the above in the face of world competition. The whole contract will involve the use of twenty-five to thirty thousand tons of ingot iron, which will be manufactured by Guest, Keen and Nettlefolds, Ltd., of Cardiff, and The Scottish Iron and Steel Co., Ltd., of Glasgow, and will give employment in Great Britain to fully two thousand men for one year. The firms operating this contract, despite the difficulties created by the coal situation, have already commenced manufacture, and furnaces for " Armco " ingot iron have been started both at Cardiff and Glasgow.

Anglo-German Industrialists' Conference

As the result of recent discussions between Sir Max Muspratt, chairman of the United Alkali Company and president of the Federation of British Industries, and Dr. Duisberg, chairman of the League of German Industrialists, it is understood that a conference has been arranged to take place in London, in October, between British and German industrialists for the purpose of establishing relations between industrial leaders of both countries.

Electricity from Lime Kilns

Chemical Engineer's New Process

CHEAP power is a matter of immense importance to manufacturers, and cheap lime is of corresponding value to farmers and builders. Consequently, any practical process capable of providing these two commodities at a fraction of their present price must attract serious attention in the industrial world. A process has been invented by Mr. T. A. Reid, a chemical engineer of Liverpool and London, who claims that by treating the gases (now wasted) given off in lime burning a power gas of usable quality and potency can be produced.

The idea of utilising the waste gases generated in lime burning is not new. Obviously the carbon dioxide and other gases thrown off from the burning chalk (or limestone) and fuel could be easily converted into a power gas, but the difficulty, from a commercial standpoint, was that of finding an economically sound method of so doing. Hitherto, most inventors have adopted an apparatus which had the convertor separate from the lime kiln. No scheme worked out on those lines is said to have passed the experimental stage; but Mr. Reid's process, which places the convertor actually in the kiln, is claimed to have proved its practical worth. For purposes of demonstration a small plant was recently erected in the village of Heathfield, Sussex. The kiln is so small that its output of lime is only 5·2 tons a week, but even from this diminutive plant electricity is now being produced at the rate of 1,000 B.O.T. units per ton per week —sufficient to light the whole village of about 1,000 houses.

The Reid process is briefly as follows. The gases from the burning chalk (or limestone) and fuel pass, before leaving the kiln, over incandescent coke in the convertor. Thus their carbon dioxide content is converted into carbon monoxide, and the resultant gas passes out through external pipes to a scrubber where it is washed. This gas is composed of about 25 per cent. carbon monoxide, 3 per cent. carbon dioxide, and 72 per cent. nitrogen. It is capable of running satisfactorily an ordinary gas engine, which in turn drives a dynamo.

Mr. Reid estimates that some 2,500,000 tons of lime are made in this country every year—mainly in the Home Counties, Derbyshire, Durham, Cumberland, South Wales, and Scotland. If the gases from this lime-burning were utilised as at Heathfield, instead of being allowed to escape into the air, sufficient electricity could be generated to meet one-third of the nation's present yearly consumption of electricity, thereby saving one-third of the 8,001,687 tons of coal which are now consumed annually in making electricity. The current thus generated could be sold at about ten units for a penny, a fraction of its present price, or the nation's supply of lime could be had as a sort of by-product of electricity generation.

New British Standard Specifications

THE British Engineering Standards Association has just issued British Standard Specifications for barytes and boiled linseed oil. They contain clauses regulating the composition, together with standard reception tests, for the purpose of barytes and boiled linseed oil and appendices giving methods of carrying out the tests. These specifications have been prepared at the request of the paint manufacturers by a committee representative of both the buying and manufacturing interests, and as in the case of all British Standard Specifications, they will be reviewed as experience of their working or progress in the industry renders it necessary, and revised issues will be published from time to time.

Copies of these two new specifications (Nos. 259 and 260, 1926) can be obtained from the B.E.S.A. Publications Department, 28, Victoria Street, S.W.1, price 1s. 2d. each post free.

Among other specifications in hand which will be published when completed are the following:—Painting materials: Zinc oxide oil paste, red oxides of iron, red oxide of iron oil paste, lead chromes, Prussian blues, lithopone, carbon black, and gold size. Ready mixed linseed oil paints: White lead, tinted white lead, zinc oxide, tinted zinc oxide, black, green and red oxide of iron. Extra hard drying oil varnish.

Trade in Bulgaria

Need for Enterprising Methods

WHEREAS Germany has suffered a set-back relatively small in proportion to her loss of territory and industrial area consequent upon the war, the United Kingdom has done little more than mark time during 1925, according to the Department of Overseas Trade report on trade with Bulgaria. France, Italy, Austria, and Czechoslovakia all have Chambers of Commerce established in Bulgaria, and Germany is likely to have one shortly. Further, our principal competitors have an additional advantage in the possession of a controlling interest in one or other of the chief Bulgarian banks. A British Chamber of Commerce was formed some years ago, but ceased to exist in 1923. This is to be regretted, as such organisations undoubtedly prepare the way for commercial and economic enterprise and help to create a favourable atmosphere.

It is probably true that United Kingdom manufacturers and exporters have not hitherto taken full advantage of the opportunities for business in Bulgaria. "British" is still a synonym for excellence of quality in that country, and tradition has established a psychology primarily favourable to the United Kingdom. But sentiment alone is not enough. It requires to be reinforced by energy and enterprise, and backed by prices and conditions of sale within the means of a country that has fallen on hard times and must live from hand to mouth, while struggling to recover her lost prosperity. Too much stress cannot be laid on the necessity for persistent and judicious activity on the part of United Kingdom manufacturers themselves.

It is unwise to rely entirely on correspondence, for foreign firms have their direct representatives on the spot. Nor can United Kingdom firms expect to make profits if they employ representatives with expensive tastes and social ambitions. They need energetic men of sound technical knowledge, prepared to do the inevitable spade-work, and not to be deterred by discouragement or even by snubs. Instances could be given of such men securing business in spite of cold water thrown upon them by pessimistic or less enterprising fellow countrymen. In the matter of agents, the present dearth of British firms in Bulgaria renders the employment of Bulgarian or other non-British agents inevitable; but a reasonable safeguard exists in the Department of Overseas Trade, and the Consulate, to either of which preliminary inquiry can always be addressed. In the post-war trade boom some British firms formed hasty and ill-considered connections under terms of payment which could scarcely fail to result in unpleasant experiences; and even during 1925 such cases have come to light which could scarcely have occurred if this elementary precaution had been taken. They are all the more regrettable, as they acquire notoriety in the United Kingdom and tend to give an entirely erroneous impression of Bulgarian credit and business morality, to which the large majority of British commercial travellers give favourable testimony. It is a waste of time for United Kingdom firms to invite business on cash-against-document terms. It may well be that the credit system has passed all reasonable bounds; but as long as our trade competitors give credit, United Kingdom firms must conform or lose the business. It can be given with relative safety in carefully selected cases; and connections with the strongly developed co-operative societies might be extended with advantage.

Increased Use of Oil in Gas Production

IN a recently issued Board of Trade Return relating to all authorised gas undertakings in Great Britain, it is stated that 15,922,049 gallons more of oil were used in the manufacture of water gas last year than in 1924. It also mentions that the quantity of gas made during the year was 8,592,469,000 cubic feet (3·1 per cent.) in excess of the quantity made in 1924. A slight decrease (538,355,000 cubic feet, or 0·2 per cent.) occurred in the quantity of coal gas made, but the quantity of water gas made increased by 8,905,071,000 cubic feet, or 22·7 per cent. The coal carbonised was less than in 1924 by 298,008 tons, the coke and breeze made was less by 259,083 tons, and the tar made was less by 1,088,974 gallons. The quantity of gas sold increased by 8,865,431,000 cubic feet, or 3·5 per cent., whilst the number of consumers increased by 206,669.

From Week to Week

THE ESTIMATED LINSEED CROP in Argentina for the current season is believed to be 6,300,000 acres.

15,000 TONS OF SALT, valued at 135,000 rupees, were exported from Aden last July, according to figures given by the Aden Port Trust.

THE GERMAN DYE TRUST, according to a Berlin report, is said to be investigating a chemical process which will enable it to manufacture synthetic rubber.

SYNTHETIC AMMONIA AND NITRATES, LTD., Stockton-on-Tees, have accepted the tender of Henry Berry and Co., Leeds, for twenty sets of hydraulic pumping machinery.

A FIRE OCCURRED on Saturday, September 18, in the melting shop on the premises of T. Pickering and Sons, soap and candle manufacturers, of Birmingham. Little damage, however, was done.

THE AUSTRALIAN COUNCIL for Scientific and Industrial Research has given considerable attention to the question of carrying out research work which would assist in the commercial production of oil from shale, and a statement outlining the Council's attitude on the matter will shortly be available.

THE BARNET URBAN DISTRICT COUNCIL held a conference on Tuesday evening with residents of the immediate neighbourhood, to discuss the question relating to the chemical works in Queen's Road. Fifteen residents have memorialised the Council to the effect that the works are a nuisance, and that the effluvia emanating from the works are injurious to public health.

MARCELLIN BERTHELOT, THE GREAT FRENCH CHEMIST, was born in 1827. In order to perpetuate his memory, it has been decided, in connection with the celebration of the approaching centenary of his birth, to erect a House of Chemistry. It will be open alike to the pure scientist and the technician, and will comprise a great library, an international information bureau, laboratories and meeting halls, to which foreign workers will have access.

MR. G. W. DOUGLAS, of Ilkley, is shortly leaving for India, where he has been appointed as State Chemist to take charge of the Government Laboratories at Bhopal. He matriculated at the University of London, and took his B.Sc. degree at the University of Leeds, where he also obtained a diploma in leather chemistry. For some time Mr. Douglas was research assistant in the Proctor Research Laboratory, and had recently been assistant to the City and County Analyst in Leeds.

THE FIRST MEETING of the Brotherton Sports Club was held on Saturday last, at Woodslee, Cheshire, an estate purchased by Brotherton and Co., Ltd., for the housing of the employees of the Port Rainbow Colour and Hydrosulphite Works. It was an entirely successful gathering. The spacious grounds of the estate have been laid out for cricket, football, tennis and bowls, and the upkeep of the sports fields and management of the games are in the hands of a committee of staff and workpeople.

ON THE CLOSING of the Finsbury Technical College the Institute of Chemistry has been offered the Meldola Library consisting of 150 volumes together with a sum of about £35 on that account, and also the Streatfeild Memorial Fund comprising £200 4 per cent. War Loan and a further sum of about £35. The Meldola Library was formed as a memorial to the late Professor Raphael Meldola, and with this gift is included a coloured photograph of Professor Meldola. The Chemical Library of the College will also be presented to the Institute. The Streatfeild Memorial Fund was founded to provide for the delivery of an annual lecture as a memorial to Frederick William Streatfeild, to be given, so far as possible, for some years to come, by former students of Finsbury Technical College. The Council has accepted these gifts, and a special committee has been appointed to consider and report to the Council on the arrangements to be made to meet the conditions which accompany them.

APPLICATIONS ARE INVITED for the following appointments:—Head of the Department of Chemistry, Witwatersrand Technical Institute, South Africa. £450-£25-£650, plus local allowance. The Secretary, Office of the High Commissioner for the Union of South Africa, Trafalgar Square, London, W.C.2. September 30.—Adviser in Agricultural Chemistry, University of Durham (Armstrong College), Newcastle-upon-Tyne. £300 plus bonus. The Registrar, October 1.—Research Bio-Chemist in the Walter and Eliza Hall Institute of Research, Melbourne, Australia. Two years. £750. The Agent-General for Victoria, Victoria House, Melbourne Place, Strand, London, W.C.2. September 30.—Research Chemists for the Chemical Research Laboratory, Teddington, Middlesex. Good Honours Degree or equivalent and some research experience. £175-£15-235 plus Civil service bonus. The Secretary, Department of Scientific and Industrial Research, 16, Old Queen Street, Westminster, London, S.W.1. October 7.—Temporary Chemist for work under Safety in Mines Research Board. £160-£10-£190, plus cost of living bonus; present minimum £246. The Under-Secretary for Mines, Establishment Branch, Mines Dept., Dean Stanley Street, London, S.W.1. September 29.

FOUNDER'S DAY CELEBRATIONS were held at Port Sunlight on Saturday, September 18, when a general holiday was spent.

THE STANTON COAL AND IRON CO.'S Alfreton Ironworks have closed down for an indefinite period owing to the insufficiency of coal.

THE TRANSFORMATION OF HYDROGEN INTO HELIUM is claimed by Professor Paneth and Dr. Peters, of the University of Berlin. Details are not yet available, but will be published shortly.

THE RUSSIAN GOVERNMENT is reported to have decided to found a potash trust with a capital of 5 million roubles for exploitation of native potash beds; 51 per cent. of the capital will be held by the State.

THE SUPERPHOSPHATE WORKS CO., of Stockholm, has applied to the Swedish Government for a State loan of 3,000,000 to 5,000,000 kroner for the erection of nitric acid and nitrate works at Trollhattan.

DR. W. S. MYERS has just concluded twenty-five years of service as director of the educational Bureau of Chilian Nitrate Producers in the United States and Cuba. He is still actively engaged in the work of the Bureau.

THE LILLIPUT LAUNDRY AND DYEWORKS, LTD., have acquired the extensive premises, lands and dwelling houses recently owned by the Milfort Weaving and Finishing Co., at Dunmurry, Ireland, together with the entire machinery. The new proprietors, it is believed, will erect an installation of the most modern plants known in the laundry and dyeworks industries.

WE ARE INFORMED that the ceremony of laying the foundation stone of the chapel of Ellesmere College, Shropshire, which is being erected as a memorial to old Ellesmerians, will take place on Wednesday, September 29, not on September 30, as previously announced. Full details of the ceremony can be obtained from, and contributions to the memorial fund may be made to, The Secretary, Ellesmere College, Shropshire.

RECENT WILLS INCLUDE: Mr. Frederick C. L. Wratten, aged 85, of Croydon, founder of Wratten and Wainwright, a pioneer in the manufacture on a commercial scale of the gelatine dry plate, £52,007.—Mr. Walter Green, of Thornbury, Bradford, retired dyer, £5,079.—Mr. Henry Ayscough Thompson, aged 68, of Potters Bar, Herts, a director of Willows, Francis, Butler and Thompson, Ltd., manufacturing chemists, £18,022.—Mr. Albert Edward Prior, of Bromley, varnish manufacturer, £17,371.

MR. W. LEAVER, B.Sc., who for some time has been a member of the agricultural staff of Fertiliser Sales, Ltd., is on his way to Japan, where he will be engaged in arranging cyanamide experiments and tests. He is a native of Kent and, after a practical farm training, studied at the Wye Agricultural College, where he took his degree in agriculture. Japan already uses large quantities of cyanamide, and cultivators there are showing increasing interest in the development of agricultural products by the use of fertilisers.

THE MINERALOGICAL SOCIETY of Great Britain and Ireland, which was founded on February 3, 1876, is celebrating its jubilee by a number of functions. On Tuesday evening there was a conversazione in the rooms of the Geological Society, after which the president of the Mineralogical Society, Professor W. W. Watts, delivered an address. Further meetings were held during the week at the Imperial Institute and the Natural History Museum. A number of delegates from abroad are attending the celebrations, which will close with various excursions.

WE HAVE RECEIVED a copy of the prospectus from the Northern Polytechnic, Holloway, London, N.7, for the session 1926–27, which opens on September 27. Courses are provided in preparation for the B.Sc. and higher degrees of the University and for the diplomas of the Institute of Chemistry. Applied science for the chemical, building and music trades also receive attention, and this Polytechnic is unique in possessing a complete plant for rubber manufacture, and instruction in rubber technology. Applications for information may be addressed to the Secretary.

FAIRFIELD-HOWDEN RUTHS STEAM ACCUMULATORS, LTD., of Caxton House, Westminster, have just received an order from the Bradford Dyers' Association, Ltd. (Adams Hamilton and Sons, Ltd., Branch, Paisley), for a steam accumulator with a steam storage capacity of 20,000 lb. between the pressures of 165 lb. and 50 lb. per square inch, together with the necessary automatic valves. The size of the accumulator is approximately 47 ft. by 13 ft. The principle of steam accumulation, which is being so freely adopted on the Continent, is now making headway in this country, and orders are being steadily placed for plants made in British works.

Obituary

AUGUST FINCK, head of the Verein für Chemische Industrie A.-G. of Frankfurt, aged 58. He was connected with the wood-distillation industry.

DR. W. L. UGLOW, Professor of Mineralogy at the University of British Columbia. During the latter part of the War, he conducted a search for platinum, chromium, and tungsten in British Columbia for the Munitions Research Commission.

References to Current Literature

British

ABSORPTION.—The absorption of gases by charcoal. Part I. R. A. Smith. *Roy. Soc. Proc.*, September, 1926, pp. 296–303.

ALKALOIDS.—Synthetical experiments in the phenanthrene group of the alkaloids. Part I. R. Robinson and J. Shinoda. *Chem. Soc. Trans.*, August, 1926, pp. 1987–1995.

Conessine. D. D. Kanga, P. R. Ayyar and J. L. Simonsen. *Chem. Soc. Trans.*, August, 1926, pp. 2123–2127.

ANALYSIS.—The determination of potassium in the presence and absence of sulphates. M. A. Hamid. *Analyst*, September, 1926, pp. 450–453.

COMBUSTION.—The propagation of flame in mixtures of methane and air. Part IV. W. R. Chapman and R. V. Wheeler. *Chem. Soc. Trans.*, August, 1926, pp. 2139–2147.

DYESTUFFS.—The spectrophotometric examination of dyes and indicators. Part I. Theory and instruments. E. B. R. Prideaux. *J.S.C.I.*, September 10, 1926, pp. 664–668.

FILTRATION.—The stream-line filter. J. W. Hinchley. *J.S.C.I.*, September 10, 1926, pp. 660–664.

GLYCEROXIDES.—A new method for the preparation of alkali glyceroxides. C. F. Cross and J. M. Jacobs. *J.S.C.I.*, September 10, 1926, pp. 320–321 T.

GOLD.—Experiments upon the reported transmutation of mercury into gold. M. W. Garrett. *Roy. Soc. Proc.*, September, 1926, pp. 391–406.

OPTICALLY ACTIVE COMPOUNDS.—The dependence of rotatory power on chemical constitution. Part XXIX. The resolution of sulphoxides into their optically active forms. P. W. B. Harrison, J. Kenyon and H. Phillips. *Chem. Soc. Trans.*, August, 1926, pp. 2079–2090.

The rotatory dispersion of the esters of lactic acid. Part II. The isomeric butyl esters. C. E. Wood, J. E. Such and F. Scarf. *Chem. Soc. Trans.*, August, 1926, pp. 1928–1938.

OXIDATION.—The oxidation of tartaric acid by solutions of silver salts. D. R. Maxted. *Chem. Soc. Trans.*, August, 1926, pp. 2178–2182.

OXIMES.—The isomerism of the oximes. Part XXV. O. L. Brady and R. F. Goldstein. *Chem. Soc. Trans.*, August, 1926, pp. 1918–1924.

SURFACE FILMS.—The structure of thin films. Parts VIII and IX. N. K. Adam and G. Jessop. *Roy. Soc. Proc.*, September, 1926, pp. 362–380.

WAXES.—The physical and chemical properties of paraffin wax, particularly in the solid state. J. A. Carpenter. *J. Inst. Petroleum Tech.*, June, 1926, pp. 288–315.

United States

CARBONISATION.—Low-temperature carbonisation. V. Z. Caracristi. *J. Franklin Inst.*, September, 1926, pp. 323–336.

Low-temperature carbonisation in Europe and America. H. W. Brooks. *J. Franklin Inst.*, September, 1926, pp. 337–364.

COMBUSTION.—Extinction of methane-air flames by some chlorinated hydrocarbons. H. F. Coward and G. W. Jones. *J. Ind. Eng. Chem.*, September, 1926, pp. 970–974.

FERTILISERS.—Chemistry's contributions to the fertiliser industry. J. E. Breckenridge. *J. Ind. Eng. Chem.*, September, 1926, pp. 941–943.

GENERAL.—The cotton seed and its products. D. Wesson. *J. Ind. Eng. Chem.*, September, 1926, pp. 938–940.

Fifty years of developments of compressed gases. G. O. Carter. *J. Ind. Eng. Chem.*, September, 1926, pp. 954–956.

Power possibilities of coal by-products. W. H. Blauvelt. *J. Franklin Inst.*, September, 1926, pp. 307–321.

PHENOLS.—Recovery of phenols from gas liquors. R. M. Crawford. *Blast Furnace and Steel Plant*, September, 1926, pp. 400–401.

RUBBER.—Anti-oxidants and their retarding action in the deterioration of rubber. L. E. Weber. *J. Ind. Eng. Chem.*, September, 1926, pp. 963–964.

Changes in the rubber industry during the past fifty years. G. Oenslager. *J. Ind. Eng. Chem.*, September, 1926, pp. 902–905.

SURFACE FILMS.—The properties of surface films on liquids. N. K. Adam. *Chem. Reviews*, July, 1926, pp. 163–197.

French

ALKALOIDS.—Aminoxides of alkaloids. Part I. M. and M. Polonovski. *Bull. Soc. Chim.*, August, 1926, pp. 1147–1167.

ANALYSIS.—Electrolytic separations with graduated potential. A. Lassieur. *Bull. Soc. Chim.*, August, 1926, pp. 1167–1183.

Application of the Gerber method to the estimation of the fats of cocoa and chocolate. J. Ruffy. *Ann. Chim. Analyt.*, August, 1926, pp. 225–227.

GENERAL.—The equipment of chemical industries. Part VI. A. Matagrin. *Rev. Chim. Ind.*, August, 1926, pp. 240–245.

Some remarks on the chemistry of marine algæ. L. Leroux. *Rev. gén. Sciences*, August 15–31, 1926, pp. 471–474.

Some recent progress in the chemistry of organo-magnesium compounds. M. Dublien. *Rev. gén. Sciences*, June 30, 1926, pp. 366–371.

SCRUBBING.—The use of tetralin for the scrubbing of gases. Part II. M. Weissenberger and M. Schuster. *Rev. Prod. Chim.*, August 31, 1926, pp. 541–545.

SUGARS.—Glucose; its properties, manufacture and uses. Part II. J. Fritsch. *Rev. Chim. Ind.*, August, 1926, pp. 245–247.

German

ACIDS.—On the preparation of glyoxylic acid from oxalic acid. W. Mohrschulz. *Z. Elektrochem.*, September, 1926, pp. 434–454.

ANALYSIS.—The decomposition of volumetric sodium thiosulphate solutions. E. Schulek. *Z. anal. Chem.*, Vol. 68, No. 11, 1926, pp. 387–397.

The estimation of sulphur in iron. K. K. Järvinen. *Z. anal. Chem.*, Vol. 68, No. 11, 1926, pp. 397–404.

Simple comparison electrodes for electrometric estimations with permanganate. R. Lang. *Z. Elektrochem.*, September, 1926, pp. 454–460.

A new volumetric method for the estimation of acetylene. R. Strebinger and A. Wojs. *Z. anal. Chem.*, Vol. 69, No. 1, 1926, pp. 20–29.

CRYSTALLISATION.—Mechanical crystallisation. Part I. H. Griffiths. *Chem.-Zeit.*, September 15, 1926, pp. 689–691.

FILTRATION.—Filtration of solutions in the potash industry. H. Schillbach. *Chem. Apparatur*, August 25, 1926, pp. 189–190.

GLUE.—The water content of glue and its importance for valuation purposes. Part II. F. Baum. *Chem.-Zeit.* September 15, 1926, pp. 691–692.

PHOTOGRAPHY.—Retardation and catalysis of photographic processes. A. Steigmann. *Chem.-Zeit.*, September 8, 1926, pp. 672–673.

SILICON COMPOUNDS.—Silicon dioxide and its hydrate. R. Schwarz. *Z. Elektrochem.*, September, 1926, pp. 415–419.

Silicon and nitrogen. L. Wöhler. *Z. Elektrochem.*, September, 1926, pp. 420–423.

SPECTROSCOPY.—The absorption spectra of some quinones. The relation of quinones to α-diketones. L. Light. *Z. physikal. Chem.*, August 20, 1926, pp. 414–454.

SULPHIDES.—The manufacture of barium sulphide. W. Hirschel. *Chem.-Zeit.*, September 15, 1926, pp. 692–693.

VISCOSE.—Viscose artificial silk manufacture. Part V. E. Wurtz. *Chem. Apparatur*, August 25, 1926, pp. 185–188.

WATER.—Methods for the estimation of iodine in drinking water. W. Steffens. *Z. angew. Chem.*, September 16, 1926, pp. 1098–1100.

Waste water containing phenols and the practicability of its purification. H. Bach. *Z. angew. Chem.*, September 16, 1926, pp. 1093–1098.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

257,148. Colour Lakes Containing Molybdenum, Production of. J. Y. Johnson, London. From I. G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. Application date, December 17, 1925.

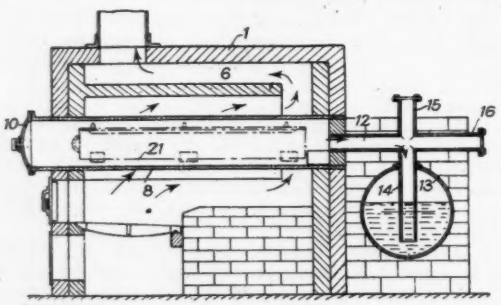
Basic dyestuffs with or without acid groups can be converted into fast colour lakes by treatment with phospho-tungstic acid, phospho-molybdic acid, phospho-tungstic-molybdic acid, and similar complex acids and salts. It has now been found that lakes of this kind containing molybdenum can be obtained by acting on the dyestuffs with solutions of components which are capable of forming complex molybdenum compounds. In this manner, the complex compounds need not be isolated before their combination with the dyestuffs. The basic dyestuff may be partly precipitated by complex acids such as phospho-tungstic or antimony-tungstic acid, and the precipitation completed by adding the components capable of forming complex molybdenum compounds. Alternatively, a lake containing one of the components may be treated with the other component. Examples are given of the production of lakes from methyl-violet B.

257,151. De-creosotising Tar and Tar Products, Process for. K. Bube, 16, Prinzenstrasse, Halle-Saale, Germany. Application date, December 22, 1925.

It is known that phenol, cresol, etc., can be recovered from tar distillates containing small percentages of hydrocarbon oils by extracting them with commercial alcohol mixed with 23–40 per cent. of water. It has now been found that the proportion of alcohol may be reduced if the treatment is carried out above 50° C. The alcoholic extract is distilled to remove a mixture of alcohol and water without the use of a dephlegmator until the creosote constituents separate out.

257,152. Obtaining Light Hydrocarbons and Carbon From Heavy Hydrocarbons, Coal Tar, Pitch, etc., Process and Apparatus for. W. Knapp, 16, Fichtestrasse, Hamburg, Germany, and Wandsbeker Maschinenfabrik und Eisenbauanstalt Bruno Fischer and Carl Steiding, 147, Volksdorferstrasse, Wandsbek, Germany. Application date, December 24, 1925.

A series of horizontal retorts 8 are arranged in a refractory casing 1, and are heated by combustion gases circulating



257,152

through flues 6. Each retort is closed by a door 10 at one end, and at the other end is provided with a conduit 12, having branches 14, 15, 16. The oil or pitch is contained in a steel cylinder 21 having a longitudinal slot closed by a cover on its upper side. The tubes 21 are provided with projecting lugs to raise them out of contact with the retorts 8. The container 13 is also filled with the oil to be treated. The empty retort 8 is heated to redness and the container 21 filled with oil is then inserted into it. The oil boils and then overflows into a retort 8 where it is gasified until only carbon remains. The gas passes into the oil in the vessel 13 which is raised to boiling point, and the products pass to condensers where the high boiling constituents are condensed, and the low boiling constituents are then compressed and liquefied. The extensions 15, 16, may be used in place of the tubes 12, 14, when the latter are being cleaned.

257,170. Separating Fatty Acids from Glycerides, Process for. A. Eisenstein, 1, Parkweg, Schreckenstein, Czecho-Slovakia. Application date, February 16, 1926.

In the separation of fatty acids from glycerides by neutralising them with alkalis, alkaline earths, or carbonates, the object is to obtain the residues (soap stock) free from neutral oils. The retention of the oil is found to be due to two distinct causes, (1) adsorption of the oil with the soap, (2) adhesion of the oil to the soap. It has been found that soaps insoluble in oil are capable of adsorbing fatty acids, in preference to the neutral oil or fat, from a mixture of neutral oil or fat with fatty acids. Thus, if soap is added to acid oil, it adsorbs fatty acids in preference to neutral oil, and the former are removed from the oil by the separation of the soap. The soap employed may be a soda or potash soap or any other oil-insoluble compound of a metal with an organic acid. It may be made by neutralising part of the free fatty acids by soda or potash lye or carbonate. The residues of soap and neutral oil obtained by the usual neutralising process can also be used, in which case the adsorbed neutral oil is replaced by fatty acid. The acids may be first partly neutralised and the resulting soap adsorbs an additional part of the free fatty acids. The residual free fatty acids are then converted into soap by complete neutralisation with alkali. The resulting soap containing adsorbed neutral oils is then added to a second quantity of acid oil. So that its free fatty acid is substituted for the neutral oil in the soap.

The adhesion of the neutral oil to the soap may then be eliminated by treating with a salt solution of such concentration that the soap is insoluble in it. The soap is then precipitated in this solution, and the liberated oil mixes with the main body of the oil. The salt solution may be added with or after the lye or soap. Examples are given of the treatment of olive oil, palm oil, train oil, and lard.

257,208–9. Rotary Gas Washers, Absorption Apparatus, Etc. M. Aurig, 1, Herschelstrasse, Munich, and G. Brucklmayr, 14, Knobelstrasse, Munich, Germany. Application date, May 17, 1926.

257,208. This gas washer is of the kind in which hollow truncated perforated conical distributors are used, with means for injecting the liquid into the space within the cone at the smaller end against the stream of gas. The distribution of the liquid is improved by providing the cone with oblique or helical vanes which project outwards at the smaller end of the cone or over the whole outer surface.

257,209. This gas washer is of the kind having a cylindrical cage formed of bars of angular cross section fixed at their ends to supporting rings. An improved attachment of the bars to the rings is secured by making a cut along the angle and then bending the two lugs thus formed, so that they lie flat against the inner face of the supporting ring, and may be riveted to it. Alternatively, only one of the lugs may be bent so as to lie in the face of the ring, while the other lug abuts against the inner circumference of the ring.

Note.—Abstracts of the following specifications which are now accepted, appeared in The Chemical Age when they became open to inspection under the International Convention:—246,833 (Bakelite Ges.), relating to phenol-aldehyde condensation products, see Vol. XIV, p. 361; 247,524 (Farbenfabriken vorm. F. Bayer and Co.), relating to alkali hydrosulphites, see Vol. XIV, p. 461; 250,199 (Chemische Fabrik auf Actien, vorm. E. Schering), relating to dehydration of formic acid see Vol. XIV, p. 578; 250,208 (C. Deguide), relating to purification of silicates of baryta, see Vol. XIV, p. 578.

International Specifications not yet Accepted

255,078. Chromates and Manganates. Compagnie Générale de Produits Chimiques de Louvres, Louvres, Seine-et-Oise, France, and P. Pipereaut, 8, Rue Abel, Paris. International Convention date, July 8, 1925.

A powdered iron-chromium, or iron-manganese alloy containing 6–8 per cent. of carbon, is heated with an alkali carbonate and nitrate. The reaction is strongly exothermic. Air may be employed as the oxidising agent in place of the nitrate. The reaction is started by igniting the mixture at one point, and the molten mass obtained contains alkali chromates or manganates.

255,086. Dyes. Durand and Huguenin Akt.-Ges., Basle, Switzerland. International Convention date, July 13, 1925.

To obtain disazo dyes, *p*-phenylene-diamine is diazotised in two stages, and coupled after each stage with an aryl-*o*-oxycarboxylic acid. An intermediate compound containing only one free amino group may be diazotised at the first stage, the second amino group being formed in the monoazo dyestuff thus produced. In one example, the monoazo dyestuff from sodium *p*-nitraniline sulphonate and salicylic acid is reduced with sodium disulphide, and the product diazotised and coupled with salicylic acid.

255,087. Basic Chromium Double Salts. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. (Assignees of Farbwerke vorm. Meister, Lucius, and Brüning, Hoechst-on-Main, Germany.) International Convention date, July 10, 1925. Addition to 251,267. (See The Chemical Age, Vol. XV, p. 59.)

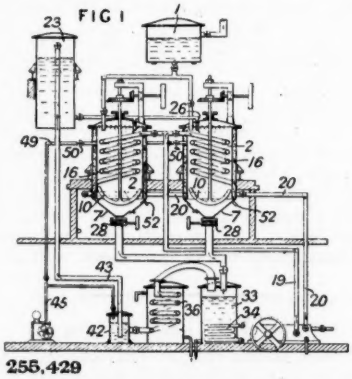
A basic tanning salt is obtained by treating highly-concentrated magnesium dichromate with sulphur dioxide to produce $Mg.SO_4.Cr_2(OH)_2.SO_4$. The sulphur dioxide may be replaced by methyl alcohol or acetaldehyde and an acid sufficient to produce a substance of the desired basicity.

255,411. Carbonising Coal. Compagnie des Mines de Vicoigne, Noeux, et Droucourt, 53, Rue de Chateaudun, Paris. International Convention date, July 17, 1925.

A paste of finely divided coal and tar, pitch, heavy oil, asphalt, or sulphite cellulose is heated by steam or non-oxidising gases, up to 600° C. for 3-12 hours to obtain a carbonaceous fuel.

255,429. Crystallising Anthracene and Naphthalene. A. Meiro, 50, Rue Dupont, Brussels. International Convention date, July 15, 1925.

Coal tar distillate is agitated with a solvent while being cooled, until the crystals separate, the crystals being then



255,429

treated with air and washed with water. The vessels 2 are alternately filled with distillate from a tank 1, and solvent is added from tank 23 through pipe 26. Ammonia is pumped through pipes 16, 19, 20 to cool the solution, and the crystals which are precipitated collect in the conical bottom 7. The solution is drawn off to an evaporating tank 33, heated by a steam coil 34, and the solvent is condensed in a coil 36, from which it is returned by air pressure to the tank 23. The compressed air is also passed through pipe 49 to the vessel 2 to treat the crystals, and water is then admitted to wash them.

255,428. Distilling Hydrocarbons. Bataafsche Petroleum Maatschappij, 30, Carel van Bylandtlaan, Mauritzlaan, The Hague, Holland. International Convention date, July 14, 1925.

Casing-head gasoline, or petroleum distillates or cracked products are distilled to obtain three fractions in three rectifying columns, the first fraction being gaseous, the second suitable for blending with heavy gasoline, and the third being a stabilised gasoline. Ethane, propane, or butane may also be obtained.

255,434. Synthetic Drugs. Chemische Fabrik auf Actien, vorm. E. Schering, 170, Mullerstrasse, Berlin. (Assignees of G. Frerichs, 52, Kurfürstenstrasse, Bonn-on-Rhine, Germany.) International Convention date, July 16, 1925.

Dialkyl-barbituric acids are melted with dimethyl-aminophenyl-dimethylpyrazolone and then cooled, both operations being effected in an inert gas, to obtain double compounds.

255,464. Hydrofluoric Acid. M. Buchner, 1, Schellingstrasse, Kleefeld, Hanover, Germany. International Convention date, June 2, 1924. Addition to 234,852. (See The Chemical Age, Vol. XIII, p. 133.)

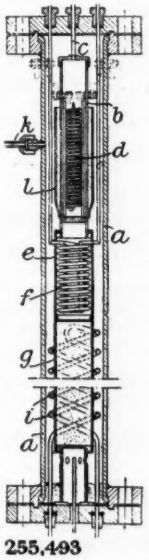
Fluorspar is decomposed with an acid, and boron fluoride is added to the mixture, or to the hydrofluoric and hydrofluosilicic acids which are liberated. The mixture of hydrofluosilicic and hydrofluoboric acids is then used to decompose an alkali fluoride to obtain pure hydrofluoric acid. The mixture of alkali silicofluoride and borofluoride are heated to obtain alkali fluoride and boron fluoride for use again.

255,466. Thiourea Derivatives. Chemische Fabrik auf Actien, vorm. E. Schering, 170, Müllerstrasse, Berlin. International Convention date, July 16, 1925.

A solution of an S-alkyl-isothiourea salt such as the hydrobromide in a weak organic base such as pyridine, dimethyl-aniline, or quinoline, is treated with an acyl-chloride to obtain a diacyl derivative of isothiourea-S-alkylether.

255,493. Hydrocarbons. H. Spindler, 24 bis, Avenue de la Gare, St. Leu, Seine-et-Oise, France. (Assignee of A. Goudet, 27, Avenue de Grenoble, Gap, Hautes Alpes, France.) International Convention date, July 18, 1925.

Methane, with or without acetylene and carbon monoxide, is heated to 500°-950° C., the dehydrogenated product cooled,



255,493

and then passed over a catalyst of zinc chloride, active carbon, aluminium and magnesium powders, and iron scale treated with alkali hydroxide. Higher hydrocarbons suitable for fuel are obtained. Three tubes, *b*, *e*, *g*, are arranged in series in a pressure vessel *a*. Tube *b* has an electric heater *d* and heat insulation *l*. Tube *e* has a cooling coil *f*, and tube *g*, which contains the catalyst, has a water cooling coil *i*. The methane containing gases enter at *c* at 70 atmospheres pressure and

pass to tube *e* where they are cooled to 250°-350° C. If the additional gases mentioned are present, the hydrogen liberated is taken up. The products then pass over the catalyst in tube *g*, and the vapours pass out over the cooling tube *i* which condenses them. Gases are drawn off through pipe *k*.

255,474. CARBONATES AND HYDRATES. M. Buchner, 1, Schellingstrasse, Kleefeld, Hanover, Germany. International Convention date, July 14, 1924. Addition to 235,588. (See THE CHEMICAL AGE, Vol. XIII, p. 176.)

Lead fluoride is treated with calcium carbonate and water at a pressure of 2 atmospheres to obtain lead hydroxide and carbonate, and calcium fluoride.

[LATEST] NOTIFICATIONS.]

258,203. Process for the production of symmetrical di-arylguanidines. Silesia Verein Chemischer Fabriken. September 23, 1925.

258,241. Method of purifying resin-containing acid. Demann, W. September 9, 1925.

258,243. Process of separating hafnium and zirconium. Naamlooze Vennootschap Philips' Gloeilampenfabrieken. September 12, 1925.

258,272. Manufacture and production of valuable liquid products from coal, tars, mineral oils, and the like. I. G. Farbenindustrie Akt.-Ges. September 10, 1925.

258,289. Manufacture and production of condensation products of urea and formaldehydes. I. G. Farbenindustrie Akt.-Ges. September 11, 1925.

Specifications Accepted with Date of Application

238,531. Detecting the presence of methane or other hydrocarbon gases, Means for. J. Sejvl, R. Winkler and M. Palkon. August 15, 1924.

239,889. Reactivation of adsorption media by treatment with heated or superheated vapours. A. L. Mond. (*Metallbank und Metallurgische Ges. Akt.-Ges.*) September 14, 1925.

240,459. Readily soluble vat preparations from quinone vat dyestuffs for wool, Manufacture of. Farbwerke vorm. Meister, Lucius, and Brüning. September 24, 1924.

247,556. Dyestuffs, Manufacture of. Soc. of Chemical Industry in Basle. February 14, 1925.

250,551 and 257,275. Esters of isoborneol and borneol, Process for the manufacture of. Chemische Fabrik auf Actien (vorm. E. Schering). April 11, 1925.

255,434. Colourless products of dialkylbarbituric acids with dimethylamino-phenyldimethyl-pyrazolone, Process for the manufacture of. Chemische Fabrik auf Actien (vorm. E. Schering.) July 16, 1925.

255,464. Hydrofluoric acid, Manufacture of. M. Buchner. June 2, 1924. Addition to 234,852.

257,676. Lead alloys. C. T. J. Vautin and C. V. Stephens. June 5, 1925.

257,711. Filtration or separation processes, Means for use in. F. Nicholas and E. S. and A. Robinson, Ltd. July 15, 1925.

257,766. Active-carbon, Manufacture of. J. Nagtegaal. October 14, 1925.

257,797. Dyestuffs, Manufacture of. O. Y. Imray. (*Soc. of Chemical Industry in Basle.*) December 15, 1925.

257,815. 2-oxynaphthalene-6-carboxylic acid, Manufacture of. A. G. Bloxam. (*I. G. Farbenindustrie Akt.-Ges.*). January 28, 1926.

257,816. Compounds prepared from 1-phenyl-2 : 3-dimethyl-4-dimethylamino-5-pyrazolone and halogenated alcohols or their esters with carbamic acid, Process for the manufacture of. W. Carpmael. (*I. G. Farbenindustrie Akt.-Ges.*) February 1, 1926.

257,820. Dyestuffs containing chromium, Manufacture of. O. Y Imray. (*Soc. of Chemical Industry in Basle.*) February 4, 1926.

257,826. Anodes for the production of organic acids. F. Tallada. February 18, 1926.

Applications for Patents

Bell and Croyden, Ltd., J., and Mason, J. W. Apparatus for measuring chemical, etc., changes produced by ultra-violet rays. 22,851. September 16.

British Dyestuffs Corporation, Ltd., Ermen, W. F. A., Evans, H., and Rogers, W. D. Manufacture of vat dyes. 22,556. September 13.

Brown, R. S. Treatment of ores, etc., containing titanium and iron. 22,987. September 17.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Manufacture of azo-dyestuffs. 22,655. September 14.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Removal of fat from raw sheep's wool. 22,989. September 17.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Manufacture of wood pulp. 22,990. September 17.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Decomposition of hydrogen sulphide, etc. 22,991. September 17.

Hatfield, H. S. Apparatus for controlling chemical operations. 23,070. September 18.

Higgins, E. B., and United Water Softeners, Ltd. Apparatus for softening water. 22,803. September 15.

Higgins, E. B., and United Water Softeners, Ltd. Processes for carrying out chemical reactions at high temperatures. 23,061. September 18.

I. G. Farbenindustrie Akt.-Ges. Manufacture of acid-proof cementing compositions. 23,079. September 18. (Germany, September 18, 1925.)

I. G. Farbenindustrie Akt.-Ges. Dyeing cellulose esters, etc. 22,985. September 17. (Germany, September 17, 1925.)

Klein, C. A. Treatment of ores, etc., containing titanium and iron. 22,987. September 17.

Kodak, Ltd. Electrical deposition of organic materials. 22,994. September 17. (United States, April 1.)

MacGregor, J., and Wallace, W. M. Recovery of soda from solutions. 22,576. September 13.

Mulligan, F. Manufacture of hydraulic cement, etc., from gypsum. 22,718. September 15.

Naugatuck Chemical Co. Vulcanisation accelerator, etc. 22,526. September 13. (United States, October 15, 1925.)

Paterson, W. Purification and softening of water. 23,006. September 17.

Salermo, Ltd., and Salerni, E. M. Distillation of carbonaceous, etc., materials. 22,791. September 15.

Schmalenbach, A. Distillation process. 22,771. September 15, (Germany, June 9.)

Soc. Anon. des Chaux et Ciments de Lafarge et du Teil. Calcining, etc., furnaces. 22,638. September 14. (Germany, August 16.)

"Lopulco" Developments

OUR readers have noted from time to time the advance made with the system of combustion apparatus manufactured in this country by International Combustion, Ltd., Africa House, Kingsway, London. This system, the "Lopulco" powdered fuel equipment, has achieved some remarkable successes during 1926. During January the North Metropolitan Electric Supply Co. decided to instal "Lopulco" entirely for their new 40,000 kw. extension at Brimsdown, and the Electricity Commissioners for South Africa have made a similar decision in connection with the huge super-power station to be constructed at Congella-Durban. During March negotiations were completed with the engineers responsible for the design and equipment of the new power station for Buenos Ayres, and a very large contract closed for "Lopulco" equipment. In the same month, the county of London Electric Supply Co. appointed International Combustion, Ltd., main contractors for the 250,000 kw. extension of the Barking super-power station and decided to equip the full range of steam generating equipment with the "Lopulco" system of powdered fuel firing. Several important industrial organisations have placed contracts for this equipment, and the engineers for the Shanghai Municipality Electricity Undertaking have now placed a contract with International Combustion, Ltd., for "Lopulco" apparatus in connection with the extensions now proceeding at the Riverside power station, Shanghai. In consequence of the growth of the business it has been necessary for International Combustion, Ltd., to embark upon immediate works extensions both at Barrow and Derby.

The I.G. and Russia

IT is reported from Berlin that an I.G. delegation, which has spent three months in Russia, has concluded an agreement with the Soviet Government for the supply of £10,000,000 worth of dyestuffs, chemicals, drugs, etc. The reports of the details of the agreement are rather confusing. According to one account, the Soviet Government agrees for three years to purchase 70 per cent. of its requirements of dyestuffs and drugs, and much of its requirements of heavy chemicals, from the I.G., while elsewhere it is stated that the agreement disposes of 70 per cent. of the I.G. output of aniline dyestuffs and drugs, and a large amount of the output of heavy chemicals. Last year Germany supplied about 85 per cent. of Russian requirements of these products.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £37 per ton, Powder, £39 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, packages extra, returnable.

BLEACHING POWDER.—Spot, £9 10s. d/d; Contract, £8 10s. d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystal, £23 per ton. Powder, £24 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORATE (SOLID).—£5 12s. 6d. to £5 17s. 6d. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 64 O.P.—Industrial, 2s. 5d. to 2s. 11d. per gall. Mineralised, 3s. 8d. to 4s. per gall., in each case according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3⅞d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 per ton for home market, 1-cwt. iron drums included.

SODIUM CHLORATE.—3d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—4⅞d. to 5½d. per lb. Crude 60's, 1s. 3d. to 1s. 5d.

ACID CRESYLIC 99/100.—2s. 6d. to 2s. 9d. per gall. 97/99.—2s. to 2s. 9d. per gall. Pale, 95%, 2s. 3d. per gall. Dark, 1s. 9d. to 2s. 3d. per gall. Steady.

ANTHRACENE.—A quality, 2½d. to 3d. per unit.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.

BENZOL.—Crude 65's, 1s. 4d. to 1s. 5d. per gall., ex works in tank wagons. Standard Motor, 2s. to 2s. 3d. per gall., ex works in tank wagons. Pure, 2s. 3d. to 3s. 3d. per gall., ex works in tank wagons.

TOLUOL.—90%, 2s. to 3s. 3d. per gall. Pure, 2s. 3d. to 3s. 9d. per gall.

XYLOL.—2s. 3d. to 3s. 3d. per gall. Pure, 4s. per gall.

CREOSOTE.—Cresylic, 20/24%, 10d. per gall. Standard specification, 6⅞d. to 7⅛d. middle oil, 6½d. to 7d. per gall. Heavy, 8d. to 8½d. per gall.

NAPHTHA.—Crude, 10d. to 1s. 1d. per gall. according to quality. Solvent 90/160, 2s. to 2s. 3d. per gall. Solvent 90/190, 1s. 3½d. to 1s. 6d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £3 10s. to £4 10s. per ton. Whizzed or hot pressed, £5 10s. to £7 10s.

NAPHTHALENE.—Crystals, £11 10s. to £12 10s. per ton. Flaked, £12 10s. to £13, according to districts.

PITCH.—Medium soft, 102s. 6d. to 120s. per ton, according to district.

PYRIDINE.—90/140, 16s. to 18s. per gall. Heavy, 7s. to 10s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. 6d. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—8s. per lb.

ACID H.—3s. 3d. per lb. 100% basis d/d.

ACID NAPHTHIONIC.—2s. 2d. per lb. 100% basis d/d.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb. 100 % basis d/d.

ACID SULPHANILIC.—9d. per lb. 100% basis d/d.

ANILINE OIL.—9½d. per lb. naked at works.

ANILINE SALTS.—9½d. to 7½d. per lb. naked at works.

BENZALDEHYDE.—2s. 1d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100 % basis d/d.

BENZOIC ACID—1s. 8½d. per lb.

o-CRESOL 29/31° C.—3d. to 3½d. per lb.

m-CRESOL 98/100%.—2s. 1d. to 2s. 3d. per lb.

p-CRESOL 32/34° C.—2s. 1d. to 2s. 3d. per lb.

DICHLORANILINE.—2s. 3d. per lb.

DIMETHYLANILINE.—1s. 11d. to 2s. per lb. d/d. Drums extra.

DINITROBENZENE.—9d. per lb. naked at works.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLANILINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—11d. to 1s. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb. d/d.

B-NAPHTHYLAMINE.—3s. 2d. per lb. d/d.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. 3d. per lb. d/d.

p-NITRANILINE.—1s. 9d. per lb. d/d.

NITROBENZENE.—7d. per lb. naked at works.

NITRONAPHTHALENE.—10d. per lb. d/d.

R. SALT.—2s. 4d. per lb. 100% basis d/d.

SODIUM NAPHTHIONATE.—1s. 9d. per lb. 100% basis d/d.

o-TOLUIDINE.—9d. per lb. naked at works.

p-TOLUIDINE.—2s. 2d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £8. Grey, £17 10s. per ton. Liquor, 9d. per gall. 32° Tw.

CHARCOAL.—£7 to £9 per ton, according to grade and locality.

IRON LIQUOR.—1s. 6d. per gall. 32° Tw. 1s. 2d. per gall. 24° Tw.

RED LIQUOR.—9½d. to 1s. per gall.

WOOD CREOSOTE.—2s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 6d. per gall. 60% O.P. Solvent, 3s. 6d. per gall, 40% O.P.

WOOD TAR.—£3 to £5 per ton, according to grade.

BROWN SUGAR OF LEAD.—£39 to £40 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 5d. per lb., according to quality, Crimson, 1s. 3d. to 1s. 7½d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—2s. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£46 to £55 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5¾d. to 6¾d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—5s. 3d. per lb.

ZINC SULPHIDE.—1s. 1d. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, 80% B.P.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 5d. per lb.

ACID, BENZOIC B.P.—2s. to 2s. 3d. per lb., according to quantity.

ACID, BORIC B.P.—Crystal, £44 per ton; Powder, £48 per ton. Carriage paid any station in Great Britain, in ton lots.

ACID, CAMPHORIC.—19s. to 21s. per lb.

ACID, CITRIC.—1s. 6d. per lb.

ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.

ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d.

ACID, SALICYLIC.—1s. 3½d. to 1s. 5d. per lb. Technical.—10½d. to 11d. per lb.

ACID, TANNIC B.P.—2s. 9d. to 2s. 11d. per lb.

ACID, TARTARIC.—1s. 0¼d. per lb., less 5%. Market firm.

AMIDOL.—9s. per lb., d/d.

ACETANILIDE.—1s. 7d. to 1s. 8d. per lb. for quantities.

AMIDOPYRIN.—11s. 6d. per lb.

AMMONIUM BENZOATE.—3s. 3d. to 3s. 6d. per lb., according to quantity.

AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks.

ATROPINE SULPHATE.—11s. per oz. for English make.

BARBITONE.—9s. per lb.

BENZONAPHTHOL.—3s. 3d. per lb. spot.

BISMUTH CARBONATE.—12s. 3d. to 14s. 3d. per lb.

BISMUTH CITRATE.—9s. 3d. to 11s. 3d. per lb.

BISMUTH SALICYLATE.—10s. to 12s. per lb.

BISMUTH SUBNITRATE.—10s. 6d. to 12s. 6d. per lb., according to quantity.

BORAX B.P.—Crystal, £27; Powder, £28 per ton. Carriage paid any station in Great Britain, in ton lots.

BROMIDES.—Potassium, 1s. 8d. to 1s. 11d. per lb.; sodium, 1s. 10d. to 2s. 2d. per lb.; ammonium, 2s. 1d. to 2s. 5d. per lb., all spot.

CALCIUM LACTATE.—1s. 5d.

CHLORAL HYDRATE.—3s. 3d. to 3s. 6d. per lb., duty paid.

CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.

CREOSOTE CARBONATE.—6s. per lb.

FORMALDEHYDE.—£39 per ton, in barrels ex wharf.

GUAIACOL CARBONATE.—7s. to 7s. 6d. per lb.

HEXAMINE.—2s. 4d. to 2s. 6d. per lb.

HOMATROPINE HYDROBROMIDE.—30s. per oz.

HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.

HYDROGEN PEROXIDE (12 VOLS.).—1s. 8d. per gallon f.o.r. makers' works, naked.

HYDROQUINONE.—4s. 3d. per lb., in cwt. lots.

HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.

IRON AMMONIUM CITRATE B.P.—2s. to 2s. 3d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 1d. to 2s. 4d. per lb.

IRON PERCHLORIDE.—22s. per cwt., 112 lb. lots.

MAGNESIUM CARBONATE.—Light Commercial, £31 per ton net.

MAGNESIUM OXIDE.—Light Commercial, £67 10s. per ton, less 2½%, price reduced; Heavy Commercial, £22 per ton, less 2½%; Heavy Pure, 2s. to 2s. 3d. per lb., according to quantity.

MENTHOL.—A.B.R. recrystallised B.P., 20s. net per lb., Synthetic, 12s. to 14s. per lb., according to quantity.

MERCURIALS.—Red oxide, 5s. 11d. to 6s. 1d. per lb.; Corrosive sublimate, 4s. 3d. to 4s. 5d. per lb.; white precipitate, 4s. 9d. to 4s. 11d. per lb.; Calomel, 4s. 6d. to 4s. 8d. per lb.

METHYL SALICYLATE.—1s. 4d. to 1s. 7d. per lb.

METHYL SULPHONAL.—16s. 6d. per lb.

METOL.—11s. per lb. British make.

PARAFORMALDEHYDE.—1s. 9d. for 100% powder.

PARALDEHYDE.—1s. 2d. to 1s. 4d. per lb.

PHENACETIN.—3s. 9d. to 4s. per lb.

PHENAZONE.—5s. 9d. to 6s. per lb.

PHENOLPHTHALEIN.—4s. per lb.

POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—81s. per cwt., less 2½% for ton lots.

POTASSIUM CITRATE.—1s. 11d. to 2s. 2d. per lb.

POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots. Quiet.

POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity.

POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.

POTASSIUM PERMANGANATE.—B.P. crystals, 6½d. per lb., spot.

QUININE SULPHATE.—2s. per oz., 1s. 8d. in 100 oz. tins.

RESORCIN.—4s. 3d. to 4s. 9d. per lb., spot.

SACCHARIN.—55s. per lb.

SALOL.—3s. per lb.

SODIUM BENZOATE, B.P.—1s. 10d. to 2s. 2d. per lb.

SODIUM CITRATE, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb., B.P.C. 1923. 1s. 11d. to 2s. 2d. per lb., according to quantity.

SODIUM FERROCYANIDE.—4d. per lb. carriage paid.

SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.

SODIUM NITROPRUSSIDE.—16s. per lb.

SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—75s. to 85s. per cwt., according to quantity.

SODIUM SALICYLATE.—Powder, 1s. 9d. to 1s. 10d. per lb. Crystal, 1s. 10d. to 1s. 11d. per lb.

SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 2d. per lb.

SODIUM SULPHITE, ANHYDROUS, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.

SULPHONAL.—10s. 6d. per lb.

TARTAR EMETIC, B.P.—Crystal or Powder, 1s. 11d. to 2s. per lb.

THYMOL.—11s. 6d. to 13s. 9d. per lb., according to quantity.

Perfumery Chemicals

ACETOPHENONE.—10s. per lb.

AUBEPINE (EX ANETHOL).—12s. per lb.

AMYL ACETATE.—2s. per lb.

AMYL BUTYRATE.—5s. 6d. per lb.

AMYL SALICYLATE.—3s. 3d. per lb.

ANETHOL (M.P. 21/22° C.).—6s. per lb.

BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. 1d. per lb.

BENZYL ALCOHOL FREE FROM CHLORINE.—2s. 1d. per lb.

BENZALDEHYDE FREE FROM CHLORINE.—2s. 7d. per lb.

BENZYL BENZOATE.—2s. 4d. per lb.

CINNAMIC ALDEHYDE NATURAL.—18s. per lb.

COUMARIN.—11s. 6d. per lb.

CITRONELLOL.—15s. per lb.

CITRAL.—9s. 6d. per lb.

ETHYL CINNAMATE.—10s. per lb.

ETHYL PHTHALATE.—3s. per lb.

EUGENOL.—10s. per lb.

GERANIOL (PALMAROSA).—19s. per lb.

GERANIOL.—6s. 3d. to 10s. 6d. per lb.

HELIOTROPINE.—5s. per lb.

ISO EUGENOL.—14s. 6d. per lb.

LINALOL.—12s. to 17s. per lb.

LINALYL ACETATE.—15s. to 18s. 6d. per lb.

METHYL ANTHRANILATE.—9s. 3d. per lb.

METHYL BENZOATE.—5s. per lb.

MUSK KETONE.—34s. per lb.

MUSK XYLOL.—8s. 3d. per lb.

NEROLIN.—3s. 9d. per lb.

PHENYL ETHYL ACETATE.—12s. per lb.

PHENYL ETHYL ALCOHOL.—10s. per lb.

RHODINOL.—30s. per lb.

SAFROL.—1s. 6d. per lb.

TERPINEOL.—1s. 6d. per lb.

VANILLIN.—20s. 6d. per lb.

Essential Oils

ALMOND OIL.—11s. 6d. per lb.

ANISE OIL.—3s. 6d. per lb.

BERGAMOT OIL.—29s. per lb,

BOURBON GERANIUM OIL.—14s. per lb.

CAMPHOR OIL.—67s. 6d. per cwt.

CANANGA OIL, JAVA.—20s. per lb.

CINNAMON OIL, LEAF.—6d. per oz.

CASSIA OIL, 80/85%.—9s. 3d. per lb.

CITRONELLA OIL.—Java, 85/90%, 2s. 7d. Ceylon, 2s. 2d. per lb.

CLOVE OIL.—6s. 3d. per lb.

EUCALYPTUS OIL, 70/75%.—2s. per lb.

LAVENDER OIL.—French 38/40%, Esters, 18s. 6d. per lb.

LEMON OIL.—10s. 6d. per lb.

LEMONGRASS OIL.—4s. 6d. per lb.

ORANGE OIL, SWEET.—10s. 3d. per lb.

OTTO OF ROSE OIL.—Bulgarian, 70s. per oz. Anatolian, 30s. per oz.

PALMA ROSA OIL.—9s. 9d. per lb.

PEPPERMINT OIL.—Wayne County, 37s. 6d. per lb. Japanese, 11s. 9d. per lb.

PETITGRAIN OIL.—9s. per lb.

SANDAL WOOD OIL.—Mysore, 26s. per lb. Australian, 17s. 3d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, September 23, 1926.

A STEADY volume of business has been passing during the last week. Markets generally are steady and there are few price changes. It is to be hoped that the coal strike will be settled at an early date, as it is generally thought that this is all that is necessary to give a decided impetus to trade. Export demand is fair although many orders which could be placed in England have to go abroad owing to the industrial situation here.

General Chemicals

ACETONE.—The market is lifeless and competition between makers continues. The tendency is towards a lower level of prices.

ACID ACETIC remains in good demand, technical 80 per cent. at £37 per ton and pure 80 per cent. at £38 per ton.

ACID FORMIC is quietly steady, price unchanged.

ACID LACTIC is not much inquired for. Price is firm at £43 per ton for 50 per cent. by weight.

OXALIC ACID.—The improvement in demand is maintained, price varying from 3⅝d. to 3¾d. per lb., according to quantity and position.

ACID TARTARIC is quiet at 11¼d. to 11⅜d. per lb.

ALUMINA SULPHATE.—Not much business is passing at present as the market is waiting for the makers' announcements of next year's prices, which may be expected shortly.

AMMONIUM CHLORIDE is indicated at £18 10s. to £19 per ton.

BARIUM CHLORIDE is rather weaker on second-hand realisations at £9 15s. per ton.

COPPER SULPHATE.—Unchanged.

EPSOM SALTS are in good demand at £5 10s. per ton.

FORMALDEHYDE has been in better demand and is quoted at £40 to £41 per ton.

LEAD ACETATE is weaker on Continental offers, white £43 10s. per ton, brown £42 to £43 per ton.

METHYL ACETONE remains a firm market and is quoted £55 to £56 per ton.

METHYL ALCOHOL.—There is little demand at the moment, but price is firm at £49 per ton.

POTASSIUM CHLORATE is in fair demand at 3½d. per lb.

POTASSIUM PERMANGANATE is quiet and is quoted 7½d. per lb.

POTASH PRUSSIATE.—A little more demand is in evidence, price 7d. per lb.

SODA ACETATE remains very scarce for early delivery and is quoted £20 15s. per ton to £21 per ton.

SODA BICHROMATE is in good demand, British makers' prices remaining unchanged at 3½d. per lb.

SODA NITRITE is quietly steady at £20 10s. per ton.

SODA PHOSPHATE.—Unchanged.

SODA PRUSSIATE.—A little more interest is being shown in this article which is quoted at 3¾d. to 4d. per lb.

SODA SULPHIDE.—Unchanged.

ZINC SULPHATE.—Unchanged.

Coal Tar Products

Owing to the continuance of the coal strike, prices quoted are in all cases more or less nominal.

90's BENZOL.—Quotations are only obtainable for Continental material, and the price asked is firm at 2s. 2d. per gallon, Continental port, naked.

PURE BENZOL is practically unobtainable with the exception of very small parcels from the Continent, and the price asked in this country for small parcels is about 4s. per gallon.

CREOSOTE OIL is practically impossible to obtain forward quotations. Very small quantities are obtainable for spot delivery. The price on rails in the provinces is round about 7¼d. per gallon, while the price in London for spot parcels is 8d. per gallon at makers' works.

CRESYLIC ACID.—There is considerably more demand for this material. The pale quality 97/99 per cent. is worth about 2s. 2d. per gallon on rails, and the dark quality is fetching 2s. 1d. per gallon, and in some cases 2s. 2d. per gallon.

SOLVENT NAPHTHA is weaker. Quotations can be obtained forward at 1s. 9d. per gallon on rails, makers' works.

HEAVY NAPHTHA.—There is very little obtainable. Spot parcels are worth 1s. 4d. to 1s. 5d. per gallon on rails.

NAPHTHALENES.—These are becoming increasingly scarce, the 76/78 quality is worth about £7 10s. per ton on rails in this country, and the 74/76 quality about £6 10s. per ton at makers' works.

Latest Oil Prices

LONDON.—LINSEED OIL, steady at 2s. 6d. advance. Spot, £31; September, £30; October-December, £30 12s. 6d.; January-April, £31 15s. RAPE OIL slow. Crude extracted, £46 10s., ex wharf; technical refined, £48 10s. COTTON OIL quiet. Refined common edible, £42; Egyptian crude, £35; deodorised, £44. TURPENTINE inactive, unaltered. American, spot, 63s.; October-December, 64s.; January-April, 66s.; and May-June, 64s. 6d. per cwt.

HULL.—LINSEED OIL.—Naked, spot and September, £31 2s. 6d.; October-December, £31 10s.; January-April, £31 17s. 6d. COTTON OIL.—Naked Bombay, crude, £33 5s.; Egyptian, crude, £33 5s.; edible refined, £38 10s.; technical, £37. PALM KERNEL OIL.—Crushed, naked, 5½ per cent., £40 10s. GROUNDNUT OIL.—Crushed-extracted, £44; deodorised, £48. SOYA OIL.—Extracted and crushed, £36 10s.; deodorised, £40. RAPE OIL.—Crude, extracted, £46; refined, £48 per ton net cash, terms, ex mill. CASTOR OIL and COD OIL.—Unchanged.

Higher Prices for Mercurials

MAY and Baker, Ltd., announce still higher prices for mercurials consequent upon the increased price of quicksilver, with the metal firm and advancing.

	For Assorted Lots or Contracts. Under 112 lb.	Not less than 112 lb.
MERCURY—	s. d.	s. d.
Ammoniated Lump B.P. (White Precip)..	5 0	4 11 lb.
,, Powder	5 1	5 0 ,,
,, Extra Fine Powder	5 2	5 1 ,,
Bichloride Lump B.P. (Corros. Sub.)	4 8	4 7 ,,
,, Pdr. B.P. or granular.....	4 1	4 0 ,,
Chloride B.P. (Calomel)	5 2	5 1 ,,
Red Oxide Cryst. B.P. (Red Precip.)	6 4	6 3 ,,
,, ,, Levig. B.P.	5 10	5 9 ,,
Yellow Oxide B.P.....	5 8	5 7 ,,
Persulphate White B.P.C.	4 11	4 10 ,,
Sulphide Black (Hyd. Sulph. cum Sulph. 50%)	4 8	4 7 ,,

Nitrogen Products

Export.—The market has been featureless for the last week or so. Small quantities available at British ports are being disposed of at about £11 per ton f.o.b. in single bags. The demand in other countries has been satisfactory with a good move out to fertiliser manufacturers in the United States.

Home.—The home trade is fairly quiet, although some forward bookings are being made. Producers are kept busy delivering quantities under contract with fertiliser manufacturers.

Nitrate of Soda.—The demand for nitrate has been less sluggish during the last week or two. The end of the uncertainty concerning prices has stimulated buying in the United States, and some cargoes have been purchased for the Continent. The reports from Chile indicate that the production will be much smaller this year. This is no doubt a consequence of the large stocks above ground, and the probability that consumption will be smaller than last year.

Calcium Cyanamide

IN view of the increase in price to £9 6s. per ton for 4 ton lots, carriage paid to any railway station in Great Britain, which comes into effect on October 1, a number of orders are being placed for September delivery, in order to secure the advantage of the September price.

Nitrate Sales

NITRATE arrivals during the last fortnight total about 18,000 tons, and 30,000 tons are due during the next fortnight. The market has been firmer, with importers inclined to increase prices, due to the very firm freight situation. The Producers' Association announces sales of 54,000 tons, making total sales for shipment after June 1, 504,000 tons, as compared with a total of about 1,400,000 tons last year. Deliveries in Europe and Egypt for the first half of September amount to about 28,000 tons, against 20,000 tons last year, making a total of 123,000 tons from July 1 to September 15, against 128,500 tons during the same period last year. Stocks on September 15 were about 240,000 tons, and afloat 96,000 tons, against 213,500 and 175,500 tons respectively a year ago.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, September 22, 1926.

WITH the continuance of the coal strike inquiry for heavy chemicals for home consumption remains very slight. There is moderate export inquiry but in the main quantities called for are not important. Prices remain fairly steady.

Industrial Chemicals

ACID ACETIC, 98/100%.—£55 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure, £39 to £41 per ton; 80% technical, £38 to £39 per ton, c.i.f. U.K. ports.

ACID BORIC.—Crystal, granulated or small flakes, £37 per ton; powdered, £39 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—In moderate demand. Quoted price advanced to 5¼d. per lb., delivered or f.o.b. U.K. ports.

ACID CITRIC, B.P. CRYSTALS.—Still quoted 1s. 3¼d. per lb., less 5%, ex store, but inquiry poor and could probably be obtained for less. Offered for early shipment from the Continent at 1s. 3d. per lb., less 5%, ex wharf.

ACID HYDROCHLORIC.—In little demand. Price 6s. 6d. per carboy, ex works.

ACID NITRIC, 80%.—Usual steady demand and price unchanged at £23 5s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—Spot material unchanged at 3¼d. per lb., ex store. Quoted 3⅜d. per lb., ex wharf for prompt shipment.

ACID SULPHURIC.—144°, £3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—Now quoted 11⅛d. per lb., less 5%, ex store.

ALUMINA SULPHATE 17/18%, IRON FREE.—Spot material on offer at about £6 per ton, ex store. Quoted £5 8s. 6d. per ton, c.i.f. U.K. ports, prompt shipment from the Continent.

ALUM, LUMP POTASH.—On offer from the Continent at £7 15s. per ton, c.i.f. U.K. ports. Spot material quoted £9 per ton, ex store. Crystal powder, £8 5s. per ton, ex store or £7 12s. 6d. per ton, c.i.f. U.K. ports.

AMMONIA ANHYDROUS.—Imported material selling at about 11¼d. to 11½d. per lb., ex wharf, containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks. delivered or f.o.b. U.K. ports.

AMMONIA, LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture quoted £23 10s. to £25 10s. per ton, ex station. Continental on offer at about £21 10s. per ton, c.i.f. U.K. ports. Fine white crystals of Continental manufacture quoted £18 5s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Now quoted £16 5s. per ton, ex store or £15 10s. per ton, ex wharf, prompt despatch from mines.

BARIUM CARBONATE. 98/100%.—White powdered quality quoted £6 15s. per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—On offer from the Continent at £8 12s. 6d. per ton, c.i.f. U.K. ports. Spot material unchanged at about £9 15s., ex store.

BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f., U.K. ports.

BLEACHING POWDER.—English material unchanged at £9 10s. per ton, ex station. Contracts 20s. per ton less. Continental now quoted £7 15s. per ton, c.i.f. U.K. ports.

BORAX.—Granulated, £22 10s. per ton; crystals, £23 per ton; powdered, £24 per ton, carriage paid U.K. stations.

CALCIUM CHLORIDE.—English manufacturers' price unchanged at £5 12s. 6d. to £5 17s. 6d. per ton, ex station. Continental again lower at £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works or at £4 2s. 6d. per ton, f.o.b. U.K. port, for export.

COPPER, SULPHATE.—Continental material on offer at about £22 per ton, ex wharf. Moderate inquiry for export and price of English material about £23 5s. per ton, f.o.b. U.K. ports.

FORMALDEHYDE 40%.—Spot material quoted £40 per ton, ex store. Quoted £39 per ton, c.i.f. U.K. ports, early shipment.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

'LEAD,' RED.—Imported material rather cheaper at £38 per ton, ex store.

LEAD, WHITE.—Quoted £38 10s. per ton, ex store.

LEAD, ACETATE.—White crystals quoted £44 10s. per ton, c.i.f. U.K. ports, prompt shipment. Brown, about £40 5s. per ton, c.i.f. U.K. ports.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

POTASH, CAUSTIC, 88/92%.—Syndicate prices vary from £25 10s. to £28 15s. per ton, c.i.f. U.K. ports, according to quantity and destination. Spot material available at about £29 per ton.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.

POTASSIUM CARBONATE, 96/98%.—Quoted £25 5s. per ton, ex wharf, early delivery. Spot material on offer at £26 10s. per ton, ex store; 90/94% quality quoted £22 5s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 98/100%.—Powdered quality on offer from the Continent at about £25 10s. per ton, c.i.f. U.K. ports. Crystals, £2 per ton extra.

POTASSIUM NITRATE (SALTPETRE).—Spot material quoted £24 per ton, ex store. On offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—On offer at 7d. per lb., ex store, spot delivery. Quoted 6¾d. per lb., ex wharf early shipment.

POTASSIUM PRUSSIATE, YELLOW.—Unchanged at about 6¼d. per lb., ex store, spot delivery. On offer from the Continent at about 6¼d. per lb., c.i.f. U.K. ports.

SODA CAUSTIC.—76/77%, £17 10s. per ton; 70/78%, £16 2s. 6d. per ton; broken 60%, £16 12s. 6d. per ton; powdered, 98/99%, £20 17s. 6d. per ton. All carriage paid U.K. stations, spot delivery. Contracts 20s. per ton less.

SODIUM ACETATE.—English material quoted £22 per ton, ex station. Continental on offer at about £20 10s. per ton, ex store, or to come forward £19 15s. per ton, c.i.f. U.K. ports.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—English price unchanged at 3½d. per lb., delivered.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality, £1 7s. 6d. per ton more. Alkali 58%, £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 per ton, ex station. Minimum 4 ton lots. Pea crystals, £14 10s. per ton, ex station. Continental commercial quality quoted £7 15s. per ton, c.i.f. U.K. ports.

SODIUM NITRATE.—Quoted £13 per ton, ex store; 96/98%, refined quality, 7s. 6d. per ton extra.

SODIUM NITRITE, 100%.—Quoted £24 per ton, ex store. Offered from the Continent at about £22 5s. per ton, c.i.f. U.K. ports.

SODIUM PRUSSIATE, YELLOW.—In moderate demand for export and prices unchanged at about 3⅝d. per lb., f.o.b. Continental port. Spot material available at 3¾d. per lb., ex store.

SODIUM SULPHATE, SALTCAKE.—Price for home consumption, £3 10s. per ton, ex works. Good inquiry for export and higher prices obtainable.

SODIUM SULPHIDE, 60/62%.—Solid, £13 5s. per ton; broken, £14 5s. per ton; flake. £15 5s. per ton; crystals, 31/34%, £8 12s. 6d. per ton. All delivered buyers' works U.K., minimum 5 ton lots with slight reduction for contracts. 60/62%, solid quality offered from the Continent at about £8 15s. per ton, c.i.f. U.K. ports. Broken quality 15s. per ton more; crystals, 30/32%, about £6 10s. per ton, c.i.f. U.K. ports.

SULPHUR.—Flowers, £11 10s. per ton; roll, £10 5s. per ton; rock, £10 5s. per ton; floristella, £9 15s. per ton; ground American, £9 per ton; ex store, spot delivery. Prices nominal.

ZINC CHLORIDE.—British material, 98/100% quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100%, solid on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports; powdered, 20s. per ton extra.

ZINC SULPHATE.—Continental make on offer at about £11 per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Coal Tar Intermediates

ALPHA NAPHTHYLAMINE.—1s. 3d. per lb., some home inquiries.

SULPHANILIC ACID.—9d. per lb., small home inquiries.

BETA NAPHTHOL.—11d. to 1s. per lb., small home inquiries.

BENZOIC ACID.—1s. 8½d. per lb., small home inquiries.

DIMETHYLANILINE.—2s. per lb., some home inquiries.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, September 23, 1926.

Although there seems to be a continued easy tendency noticeable in respect of certain of the chemical products, in relatively few cases is there much actual change in price to be reported this week, most of the leading lines fully maintaining their recent steadiness. In some quarters rather more inquiry has been reported during the past few days on this market, but it is doubtful whether there has been any improvement in actual business done. Most of the current demand is for comparatively small lots and chiefly for early delivery.

Heavy Chemicals

For prussiate of soda prices are about unchanged at 3¾d. per lb., but only a moderate trade has been put through. Phosphate of soda is in quiet demand and is currently offered at £12 5s. to £12 10s. per ton. Nitrite of soda is attracting only limited interest and values are still rather easy at £19 to £19 10s. per ton. At £3 5s. and £3 15s. per ton respectively there is no change in the levels of saltcake and glauber salts and the demand remains slow. Hyposulphite of soda is in moderate request at round £9 10s. per ton for commercial material and £15 5s. for photographic. Quotations for bleaching powder are maintained at about £8 10s. per ton and a fair trade is being done. Sulphide of soda is inactive at round £10 10s. per ton for 60-65 per cent. concentrated solid and £9 5s. for commercial crystals. Bicarbonate of soda is steady at about £10 10s. per ton, but the demand for this material is on a slow scale. In the case of caustic soda inquiry is about at its recent level and prices are firm at from £15 2s. 6d. per ton for 60 per cent. material to £17 10s. for 76 per cent. Chlorate of soda is in quiet demand at about 3¼d. per lb. Bichromate of soda is also being offered at round this figure, but there does not appear to be much buying interest in this at the moment. Alkali, 58 per cent. quality, is steady and in fair demand at about £6 15s. per ton.

There has been little alteration since last week in the position of the potash products. Permanganate of potash is in limited request with about 6¾d. per lb. quoted for B.P. quality and 5d. to 5¼d. for commercial material. Carbonate of potash is perhaps on the easy side, with quotations in the neighbourhood of £26 5s. per ton. Caustic potash is in quiet demand and values are fairly steady at about £27 per ton. Yellow prussiate of potash is rather inactive but there has been no further change in the level of prices, current quotations being about 6¾d. per lb. For chlorate of potash round 3¾d. per lb. is still being asked, whilst in the case of bichromate of potash moderate sales are being effected on the basis of 4¼d. per lb.

Arsenic is still a relatively slow seller, although values are steady at about £13 10s. per ton, on rails, for white powdered, Cornish makes. Acetate of lead is rather less firm and only in limited request at £45 10s. per ton for white and £41 for brown material. Acetate of lime has not changed much, grey being quoted at £17 to £17 10s. per ton, and brown at about £8. Nitrate of lead is steady and meets with some inquiry at round £41 per ton. The demand for sulphate of copper is on a moderate scale and export values are about unaltered at £22 10s. to £23 per ton, f.o.b.

Acids and Tar Products

There is still only a limited call for oxalic acid, but as supplies are not excessive values are somewhat steadier at 3½d. to 3¾d. per lb. Both tartaric and citric acids are quiet and possibly a shade easier although there is little actual change to report. Tartaric acid varies from 11½d. to 11¾d. per lb., with citric on offer at up to 1s. 3½d. per lb. Acetic acid is in moderate request at steady prices; for 80 per cent. commercial quality from £37 to £38 per ton is still being asked, with glacial on offer at £66.

Among the by-products pitch is becoming still dearer, with forward export prices at £6 per ton, f.o.r. Carbolic acid is also firmer at up to 5½d. per lb. for crystals, with crude nominal at 1s. 4¾d. per gallon. Creosote oil is scarce at about 8¼d. per gallon, with solvent naphtha about unchanged at 1s. 11d. per gallon.

Gas and Electricity Interests

A Plea for a Better Understanding

Under the presidency of Mr. Charles F. Botley, the Institution of Gas Engineers held their annual general meeting in the Great Hall of the Institution of Civil Engineers on Tuesday. Mr. George Evetts was presented with the H. E. Jones London Gold Medal for a paper on "The Economics of Gas Production on the Thermal Basis," and the diplomas awarded this year under the Institution's education scheme were also presented. Professor J. W. Cobb, Leeds University, in introducing the reports of the Gas Research Committee of the University and of the Institution, said the first part of the work carried through had been a very thorough investigation of the accurate determination of carbon monoxide, and attention now had been turned to an equally careful study of the nature of the products of combustion. The gas industry not only provided the purest and most controllable form of smokeless fuel in the gas, but a solid smokeless fuel in the coke and a liquid fuel in the tar. Those truths were receiving a degree of recognition in the country never before accorded to them, and the utmost care and thoroughness in investigating all that the carbonisation process could do with coal was not only justifiable but was an imperative necessity.

Sir Charles Morgan, past president of the Institution of Civil Engineers, in proposing at a luncheon the toast of "The Institution of Gas Engineers," dwelt on the importance of merging, as far as possible, the interests of gas and electric lighting in different districts, and suggested that there were advantages to be gained from a happy combination of the two interests in large and important areas. Mr. C. P. Sparks, past president of the Institute of Electrical Engineers, replying to the toast of "Kindred Associations," said that those who supplied electricity and gas were equally servants of the public, and it was essential that they should get to know each other better. A joint committee of gas and electricity had been set up. There was a feeling that if they combined the public would be let down. But co-operation would mean greater efficiency and cheapness of lighting. They must curb the hot spirits on both sides who held that it must be a case of gas or of electricity. Sir Frederic L. Nathan, president of the Institution of Chemical Engineers, also spoke.

Those present included, amongst others, Dr. T. Lewis Bailey (Chief Inspector of Alkali Works), Dr. H. T. Calvert, Dr. Margaret Fishenden (Department of Scientific and Industrial Research), Dr. C. H. Lander (Director of Fuel Research) and Mr. J. F. Ronca (Director of Gas Administration Department of the Board of Trade).

Exhibition of Coal Products

Under the patronage of the Manchester Section of the Society of Chemical Industry a National Coal Products, Chemical, and Engineering Exhibition will be held at the City Hall, Manchester, from November 16 to 27. Those exhibiting include the Thermal Syndicate, Ltd., the Manchester Corporation Gas Department, Hardman and Holden, Ltd., the British Road Tar Association, the Fuel Research Board, the Salt Union, Ltd., Sir W. H. Bailey and Co., Ltd., the Lancashire and Cheshire Coal Research Association, and the Doncaster Coalowners' Association. During the same period the fuel section of the Society of Chemical Industry will also hold a tar symposium and the Society itself is arranging a number of conferences in which it will be supported by the Institution of Gas Engineers, the Institution of Mining Engineers, the Manchester Geological and Mining Society and the Coke Oven Managers' Association.

Ferrocrete

A brochure entitled "Ferrocrete—the Rapid Hardening Cement" has been issued by the Cement Marketing Co., Ltd. The properties and uses of the substance are discussed, and many excellent photographs illustrative of its applications are given. Ferrocrete is described as a true Portland cement which, though rapid hardening, is slow setting. In about four days a concrete made with it attains a strength equal to that of a concrete made with Portland cement after 28 days. This rapid hardening naturally results in a great saving of time. The material, it is claimed, will make a waterproof concrete when mixed with clean aggregate.

Company News

ASBESTOS CORPORATION.—A dividend of 1¾ per cent. on the preferred stock is payable on October 15.

ACHILLE SERRE.—An interim dividend of 5 per cent. on the ordinary shares, less tax, is payable on September 30.

BRITISH OIL AND CAKE MILLS.—Warrants for an interim dividend on the preferred ordinary shares of 5 per cent., on account of the current year, will be posted on September 30.

BRITISH DRUG HOUSES, LTD.—The company, which was made public this year, announces a quarterly dividend of 1¼ per cent. on the preference shares to be paid on October 30.

UNITED ALKALI CO., LTD.—It is announced that no interim dividend will be paid on the ordinary shares. Last year 4 per cent. was paid and there was a final dividend of 6 per cent.

DOMINION TAR AND CHEMICAL CO.—An interim dividend for the year 1926 of 5½ per cent. on the ordinary shares is payable on September 28. A similar dividend was declared a year ago.

SWEDISH MATCH CO.—For the year ending December 31, the directors have declared an interim dividend on the "A" and "B" shares at the rate of 5 per cent. payable in Sweden on October 15.

GLENBOIG UNION FIRE CLAY CO.—The directors have resolved to recommend, subject to audit, and after providing for depreciation, a dividend at the rate of 17½ per cent. per annum, less tax.

BROKEN HILL SOUTH.—The total working profit for the year to June 30 is stated to be £602,091, of which £534,890 was derived from crude ore, and £67,201 from old dumps. The net profit is given as £485,868.

J. MANDELBERG AND CO.—The directors have declared an interim dividend at the rate of 8 per cent. per annum on the preferred ordinary shares, and at the rate of 5 per cent. per annum on the ordinary shares, payable, less tax, on September 30.

SIAMESE TIN SYNDICATE, LTD.—A second interim dividend has been declared, at the rate of 10 per cent. (6d. per share), less income tax at 4s. in the £, in respect of the current year, payable on September 28 to all shareholders registered in the books of the company on September 17.

BULMER RAYON CO., LTD.—After careful consideration the directors have decided to postpone the initial dividend until the end of the company's financial year, in view of the disastrous effect of the coal strike and the uncertainty as to when normal conditions will be re-established.

ENGLISH CHINA CLAYS, LTD.—The directors announce the payment of an interim dividend on the ordinary shares at the rate of 4 per cent. per annum for the half year ended June 30 last, to be paid on October 1 to all ordinary shareholders registered on September 18. The dividend is at the same rate as a year ago.

PARTINGTON STEEL AND IRON CO., LTD.—The report of the directors for the year ending June 30 last, states that there was a trading loss of £34,618, to which must be added £106,736 for debenture and other interest charges. After deducting the amount of £55,933 brought forward, there remains a debit balance of £85,421.

INTERNATIONAL PULP AND CHEMICAL CO., LTD.—A final participating dividend has been declared for the period ended June 30 last, upon the cumulative participating preference shares at the rate of 3 per cent. per annum, less income tax, making a total of 11 per cent. per annum, and also a relative dividend on the ordinary shares for the same period.

POWELL DUFFRYN STEAM COAL CO.—In view of the prevailing conditions, the directors consider that any question of a dividend on the preference, second preference or the ordinary shares, must be postponed until such time as they are able to satisfy themselves as to the result of the company's operations for the full financial year, which ends on December 31 next.

CELLULOSE HOLDINGS AND INVESTMENT CO.—Meetings have been called for September 24 and October 1, at which proposals will be submitted to increase the share capital from £55,000 to £500,000 by the creation of 8,900,000 additional ordinary shares of 1s. each. It is also proposed to change the name of the company to the "International Holdings and Investment Co., Ltd.

BURT, BOULTON AND HAYWOOD, LTD.—The ordinary general meeting of the company will be held at Salisbury House, London, on September 29, at 11.30 a.m. Subject to the approval of the shareholders, the directors propose to pay a final dividend on the ordinary shares of 5 per cent., subject to tax, making a total distribution for the year of 10 per cent.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us by Mr. H. T. P. Gee, Patent and Trade Mark Agent, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to October 22, 1926.

"BONOGLOS."

472,026. For paints, varnishes, enamels, dry colours, distempers, japans, lacquers and anti-corrosive oils. Class 1. Sissons Bros. and Co., Ltd., Bankside, Sculcoates, Hull; varnish, paint, colour and oil manufacturers. August 4, 1926.

"KODACHROME."

462,217. For chemical substances used in manufactures, photography, or philosophical research, and anti-corrosives. Class 1. Kodak, Ltd., Kodak House, Kingsway, London, W.C.2; manufacturers and dealers. August 12, 1926. (To be associated. Section 24.)

"MELVET."

471,994. For chemical substances prepared for use in medicine and pharmacy. Class 3. Percy Cooper Luty, 72, Balmoral Avenue, Cathcart, Glasgow; manufacturing chemist. August 3, 1926. (To be associated. Section 24.)

"PERTAB."

472,005. For chemical substances prepared for use in medicine and pharmacy. Class 3. Oesterreichische Chemische Werke, Gesellschaft mit Beschrankter Haftung (a company organised under the laws of Austria), IV/I, Technikerstrasse 5, Vienna, Austria; manufacturers. August 3, 1926. (To be associated. Section 24.)

"BATICOL."

472,332. For chemical substances used in agricultural, horticultural, veterinary and sanitary purposes. Class 2. La Société Dionysienne de Produits Chimiques (a joint stock company organised under the laws of France), 8, Rue des Ursulines, St. Denis (Seine), France; manufacturers. August 17, 1926. (To be associated. Section 24.)

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

PALM AND COCONUT OILS.—A firm of commission agents established in Danzig desires to obtain the representation of British manufacturers. (Reference No. 383.)

ANILINE DYES, ETC.—An agent in Oslo is desirous of securing the representation of British manufacturers of aniline dyes, salt cake, bleaching powder and sulphate of alumina for paper and pulp mills. (Reference No. 392.)

Tariff Changes

SPAIN.—A Decree Law dated August 28, and effective as from September 1, reduces from 5 pesetas to 10 centimos per 100 kilos (gross weight) the "Second Column" Customs duty on cyanamide of calcium (Tariff No. 887) imported into Spain. The reduction, however, is to apply only so long as this product is not manufactured in Spain.

HUNGARY.—Certificates of origin are now required for pure olive oil in receptacles weighing less than 25 kilos, refined turpentine oil, etc., on importation into Hungary.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgment

[*NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.*]

PAVION, Harry, 4, Brideoak Street, Cheetham, drug dealer. (C.C., 25/9/26.) £10 12s. 3d. August 17.

Mortgages and Charges

[*NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.*]

VAUGHAN (W. E.) AND CO., LTD., Cardiff, dyers. (M., 25/9/26.) Registered September 8, debenture, to Bank; general charge. *£5,900. December 11, 1925.

WEST YORKSHIRE OXIDE CO., LTD., Leeds. (M., 25/9/26.) Registered August 16, £1,000 debentures (filed under section 93 (3) of the Companies (Consolidation) Act 1908), present issue £400; general charge.

Satisfactions

EVANS SONS LESCHER AND WEBB, LTD. (old company), Liverpool, manufacturing chemists. (M.S., 25/9/26.) Satisfaction registered September 10, £23,000, balance of amounts registered December 4, 1902, March 12, 1908, and October 6, 1922.

VAUGHAN (W. E.) AND CO., LTD., Cardiff, dyers. (M.S., 25/9/26.) Satisfaction registered September 8, £8,000, registered May 6, 1919.

London Gazette, &c.

Companies Winding Up Voluntarily

BEGG (J. C.) AND CO., LTD. (C.W.U.V., 25/9/26.) By Special Resolution, September 2, confirmed September 17. J. M. Young, 194, High Street, Lincoln, appointed liquidator.

STOCKS AND JACKLIN, LTD. (C.W.U.V., 25/9/26.) By Special Resolution, August 25, confirmed September 10. F. E. Green, Duchy Chambers, Clarence Street, Albert Square, Manchester, appointed liquidator. Meeting of creditors at the office of Jackson and Co., solicitors, Lower Gates, Rochdale, on Wednesday, September 29, at 11 a.m. (NOTE.—This notice is purely formal. All debts have been or will be paid in full.)

Partnerships Dissolved

BRITISH DURON CO. (John Thomas STEEL and Claude MOELLER), wool cream and soap manufacturers, Drummond Road, Bradford, Yorks, by mutual consent as from May 28, 1926. Debts received and paid by J. T. Steel who will continue the business.

PARKSIDE MANUFACTURING CO. (John Wallace CONGDON and Spencer KENWARD), wholesale and export chemists and perfumers, 39, Westminster Bridge Road, London, by mutual consent as from August 28, 1926. Debts received and paid by J. W. Congdon, who will continue the business.

SENSOMA CO. (George Fraser Fitzgerald EAGAR and Walter Harry CROWTHER), manufacturers of cleaning preparations and spraying preparations, 632, Turnpike Lane, and 75, Victoria Street, Westminster, by mutual consent as from September 1, 1926. Debts received and paid by G. F. F. Eagar. The said business will be carried on by W. H. Crowther at 632, Turnpike Lane.

WELCH AND HORNER (Charles Frederick WELCH and Walter Albert CALEY), drug merchants, and essential oil importers, 9–10, Jewry Street, London, as from September 8, 1926, by mutual consent. Debts received and paid by C. F. Welch.

New Companies Registered

ABBEYGATE CHEMICAL CO., LTD., Abbeygate House, Abbeygate Street, Bath. Registered September 18. Nom. capital, £1,000 in £1 shares. Drysalters, oil and colour men, chemists, etc.

D. COWAN AND CO., LTD., 5, Oswald Street, Glasgow. Registered in Edinburgh, September 14. Nom. capital, £1,000 in £1 shares. Merchants, shippers, exporters and importers of and dealers in coal, coke, timber, oils, metals and chemicals of all kinds, etc. Directors: E. S. Cowan, Dunollie, Belmont Drive, Giffnock, Glasgow; and R. Cameron.

LONDON REFINERS, LTD., Hooker's Road, Blackhorse Road, Walthamstow, Essex. Registered September 15. Nom. capital, £2,000 in 1,000 founders' and 1,000 ordinary shares of £1 each. To acquire the business of seed crushers and refiners carried on by G. R. Kirby and W. A. F. Young, at Blackhorse Road, Walthamstow, manufacturers and refiners of and dealers in all kinds of seed crushers, oils and oleaginous and saponaceous substances, etc. Directors: G. R. Kirby, 101, Woodcote Grove Road, Coulsdon, Surrey; W. A. F. Young Macquaire.

Latest Government Contracts

RECENT Government contracts placed by the various departments include:—

Admiralty

CONTRACT AND PURCHASE DEPARTMENT.—Air Compressor: G. and J. Weir, Ltd., Cathcart, Glasgow. Paint, black: Colthurst and Harding, Ltd., Bristol. Fuel oil pumping plant and electric generating: W. H. Allen, Sons and Co., Ltd., Bedford. Steam generating plant: Sturtevant Engineering Co., Ltd., Aylesbury and Nottingham.

War Office

Asbestos, cement tiles and slates: British Fibrocement Works, Ltd., Erith. Oil, linseed raw: Younghusband Barnes and Co., London.

Air Ministry

Cylinders, oxygen, high pressure: Sir W. G. Armstrong Whitworth and Co., Ltd., Newcastle-on-Tyne.

Post Office

Battery stores: Accumulators of Woking, Ltd., Woking, Surrey; Chloride Electrical Storage Co., Ltd., Manchester; Hart Accumulator Co., Ltd., London.

Crown Agents for the Colonies

Asbestos sheets: Turner Brothers Asbestos Co., Ltd., London. Cement: Cement Marketing Co., Ltd., London; T. Beynon and Co., Ltd., London. Coal tar: J. E. C. Lord, Ltd., Weaste, Manchester. Concrete block making machines: Goodwin, Barsby and Co., Ltd., Leicester. Concrete mixers: Stothert and Pitt, Ltd., Bath. Disinfector: Meldrums, Ltd., Timperley, near Manchester. Drugs: Southall Brothers and Barclay, Ltd., Birmingham. Glass: Pilkington Brothers, Ltd., St. Helens, Lancs. Metal: The Phosphor Bronze Co., Ltd., London. Paint: Torbay Paint Co., Ltd., London. Pumping plant: Tangyes, Ltd., Birmingham. Quinine: Howards and Sons, Ltd., Ilford. Refrigerating plant: J. and E. Hall, Ltd., Dartford. Spraying machine: W. Weeks and Son, Maidstone.

Research at the Eastman Kodak Co.

THE great activity of the research laboratories of the Eastman Kodak Co., of Rochester, New York, is reflected in their publication, "Abridged Scientific Publications from the Research Laboratories of the Eastman Kodak Co.," of which Volume IX., for 1925, has just appeared. It contains, in abbreviated form, papers which have already appeared in the usual technical and scientific journals. The number of papers included is thirty-eight, filling 216 pages. Of the chemical articles, two are inorganic, one is organic, while fifteen come under the heading of physical and colloid chemistry. In addition there are papers on physical optics, photographic physics, photographic theory and practical photography.